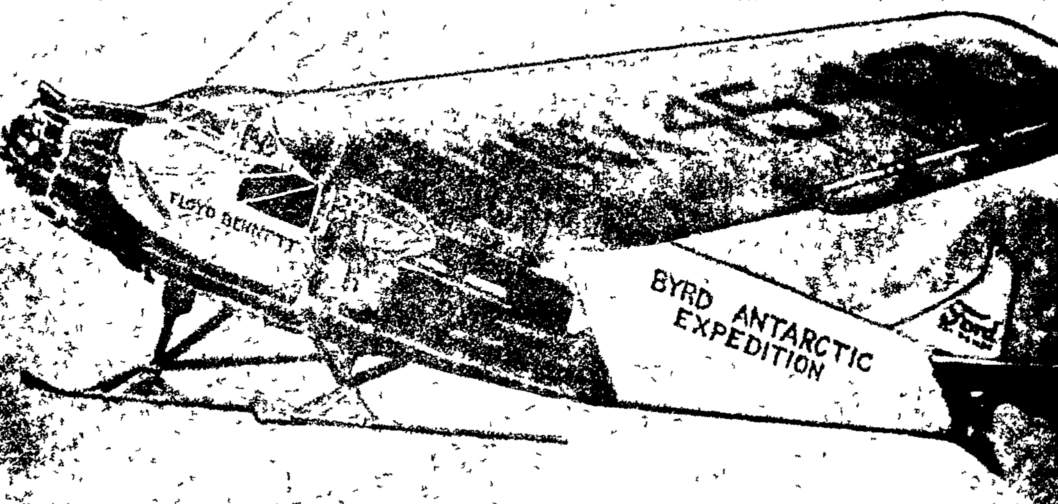


THE "FLOYD BENNETT" WINGS ITS FLIGHT OVER ANTARCTICA

The Fight to Conquer the Ends of the Earth

BYRD'S GREAT ADVENTURE

WITH THE COMPLETE STORY OF ALL POLAR EXPLORATIONS FOR ONE THOUSAND YEARS

BY
FRANCIS TREVELYAN MILLER, LL.D., LITT.D.
HISTORIAN; INTERNATIONAL GEOGRAPHICAL HISTORY OF THE WORLD WITH ADMIRAL ROBERT E. PEARY; AMERICAN HERO TALES, ETC.

WITH FOREWORDS BY
GENERAL A. W. GREELY, U. S. ARMY, RETIRED
COMMANDER OF THE "LADY FRANKLIN BAY" NORTH POLAR EXPEDITION

DR. HENRY FAIRFIELD OSBORN
PRESIDENT OF THE AMERICAN MUSEUM OF NATURAL HISTORY

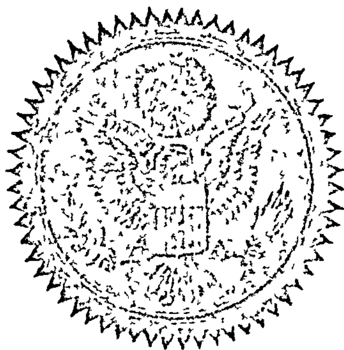
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THE JOHN C. WINSTON COMPANY
CHICAGO PHILADELPHIA TORONTO

In TRIBUTE to

REAR ADMIRAL RICHARD E. BYRD

And the Thousands of Men
Who Have Traveled the Trails
to the
ENDS OF THE EARTH



THE PRESIDENT'S MESSAGE

I know that I speak for the American People when I express their universal pleasure at your successful flight over the South Pole. We are proud of your courage and your leadership. We are glad of proof that the spirit of great adventure still lives. Our thoughts of appreciation include also your companions in the flight and your colleagues whose careful and devoted preparations have contributed to your great success.

HERBERT HOOVER

President of the United States

This Historic Message is the first in the world's history to be flashed by radio from a President of the United States to Antarctica. It was dispatched to Explorer Byrd in Little America through the official radio station of the *New York Times*—12,000 miles in a fraction of a minute The foregoing copy was released from the White House for public record

A THOUSAND YEARS OF ARCTIC EXPLORATION

By Major General A. W. Greely, U. S. Army

FOR more than a thousand years the polar regions have been the field of man's efforts to acquire a knowledge of their physical formation and to secure mastery of their material possessions. The stimulating purposes of his voyages have been in turn colonization, commerce, surveys, science, exploitation, and finally as a field of heroic adventure.

We read of the attempts and experiences in prehistoric days of the earliest arctic explorers, and of the hardy Norsemen, who discovered and occupied Iceland and southwestern Greenland as early as the tenth century. The thriving colony in Greenland, with cattle herds, substantial buildings, and even a cathedral, vanished in the fourteenth century. However, it left remarkable evidences of its daily life and current activities in that northern land. The Icelanders not only held their own but prospered, and today present a striking example of man's ability to upbuild a literate, thriving nation in an inhospitable environment—a mountainous country, ice-clad and volcano-stricken.

The discovery of America by Columbus gave rise to the explorations of the Cabots, Cortereal, Gómez, and Verrazano (1497–1524), which made known sixteen hundred miles of the American coasts and established the fisheries of Labrador.

The circumnavigation voyage of Fernando Magellan, who perished in the Philippines in 1521, introduced the commercial aspect. His voyage made known a new route to China, and caused a reconstruction of world maps to

conform with this newly added knowledge of the earth. The discoveries of Magellan, causing intensive competition for the trade of the Orient—especially between England and Spain—inspired a series of adventurous voyages, known as the Northeast and Northwest Passages. These voyages were attempted in order to find an arctic route to the Orient. While the voyages to the West in the sixteenth century were commercially fruitless, though important geographically, those to the eastward were most profitable.

The English attempt to find the Northeast Passage was made in 1553 by three ships under the command of Sir Hugh Willoughby, but the commander and crews of two vessels were lost. The third, under Richard Chancelor, entered the White Sea and wintered near the site of Archangel. The outcome was the opening of communication between Russia and the rest of the world. In 1555 the famous Muscovy Company was organized, to the great benefit of both countries.

Arctic voyages at the beginning of the seventeenth century led to the valuable fisheries in the Greenland Sea, which prospered for two centuries. To the westward was opened up the fur and fishery resources of Baffin Bay and Hudson Bay. It is interesting to note that the voyage of William Baffin, one of the most extraordinary ever made, in 1636 was not credited two centuries later by a leading English geographer.

The Russian expeditions of the eighteenth century were mainly commercial, to advance the fur trade. The Great Northern Expeditions, planned by Peter the Great, 1725–1742, not only reached Bering Sea and exploited its marine game, but crossed the Pacific and occupied Alaska. The incompleteness of Russian exploration in Siberia has been shown by the discovery in the twentieth century of

an area as large as Germany which was unknown territory. Charted as an uninhabited plain, it is a mountainous region with a large and thriving population living in isolation.

At the commencement of the nineteenth century the spirit of exploration seized the mariners of England, and their efforts were devoted to the arctic regions. Following notable discoveries by Parry at sea and John Franklin by land, there was the last expedition of Franklin by sea. He sailed in 1845 for Lancaster Sound, with the "Erebus" and the "Terror." The expedition perished to a man.

The search to determine the fate of Franklin was conducted on an unequaled scale from 1846 to 1853, without success. Thirty ships and land parties were engaged in searching thoroughly the archipelago of North America. Sledge journeys of more than ten thousand miles were made, and two ships abandoned, ice-beset. The Franklin mystery was later solved by Leopold McClintock in 1859–1860.

Following this, a new route was opened toward the pole by American explorers via Smith Sound. Exploration reached the Arctic Ocean by Kane, Hayes, and Hall. Later extensions toward the North Pole were made by Greely and the indefatigable Peary.

In the last quarter of the nineteenth century internationalists insisted that polar explorations should be devoted to scientific research, and plans were formulated by the Hamburg International Conference. Stations were established by fifteen nations, and thirty-four institutions coöperated. Observations were made on magnetic, meteorological, tidal, pendulum, botanical, geological, geographic, and allied subjects. The American stations were Lady Franklin Bay, under Greely, and Point Barrow, Alaska, under Lieutenant P. H. Ray. The data were

published in thirty-one quarto volumes, forming the most important extant body of polar data.

With these explorations, polar methods now extant ended. Made without hope of gain, uninspired by desire for conquest, they emphasized man's determination to know the uttermost parts of the earth. Undertaken with dauntless courage, they involved physical efforts and mental sufferings of the most intense character. In the field, exhausted humanity struggled at the drag ropes; strength-bereft sledgemen fell helpless on the ice. Often eyes blinded by dazzling light made safe travel difficult. Enfeebled bodies were half starved by repellent or insufficient field rations, while limbs and bodies were frostbitten or frozen solid. In camp many suffered from unaccustomed conditions; darkness was long-continued; prolonged absence of the sun was depressing; entire absence of forms of life caused an uncanny sense of isolation; monotonous surroundings threatened to unbalance feeble minds; unwonted physical surroundings oppressed many; unbroken silence became awful and overwhelmed one with the feeling of utter abandonment by the world.

With the use of steam and electricity, the trend of polar exploration has turned to exploitations of the resources of arctic lands. This process, most evident in Sweden, appears in Alaska, northern Canada, Iceland, Svalbard, and northern Russia. In Antarctica, England has practically monopolized the southern seas, at present the only source of southern wealth. In 1908 Great Britain established under its sovereignty the Dependency of the Falkland Islands, thus controlling a million square miles of sea and shore. She followed it in 1923 by the erection of the Ross Dependency. This brings about one-third of all known antarctic lands under British domination.

The inventions of the twentieth century are peculiar in their application and influence. For the first time in human history they affect all nations of the world and extend to the remotest parts of the earth. The radio and the airplane are today playing unique and controlling methods in the lives and affairs of every nation.

The initiation of air machines in polar exploration began fifty years ago, culminating in the disaster to Andrée and his party. With the development of the airplane there evolved the spirit of heroic adventure. The progress of that history is known—the flight around the earth, the solitary crossing of the Atlantic by Lindbergh, the arctic flights of Amundsen, the disastrous venture of Nobile, the flight of Wilkins from Alaska to Spitzbergen, and others too numerous to mention.

Byrd's achievements in aviation, to the both poles and across the Atlantic, were not the inspiration of the moment, but the natural outcome of his prolonged study and careful consideration. His supervisory work, beginning in 1919 in connection with the contemplated transatlantic flights of the Navy, enabled him to master not only the details of airplane construction and operation, but also led him to study the details of current flights, especially as related to the factors of their success and the causes of their disasters. His arctic flight in 1925 of six thousand miles, the airplane trip to the north pole in 1926, and his transatlantic journey in 1927, made him an expert in aviation.

His writings on aviation show sound and comprehensive judgment. He says: "Flying in the polar regions is more hazardous than foot travel, even with the best flying conditions. At the present stage it would seem that the principal function of aviation is to locate regions desirable for scientific investigation, and to leave to the dog team

user the gathering of local scientific data. The aircraft mapping camera affords a very rapid and excellent method of surveying any unknown arctic areas."

The dangers of antarctic flying were shown by the deaths in December, 1929, of Lief Lier and Dr. Ingvald Schreiner, when flying from the whaler "Kosmos," near the Balleny Islands.

WHAT IS THE VALUE OF POLAR EXPLORATION?

BY
HENRY FAIRFIELD OSBORN
President of the American Museum of Natural History

I HAVE had the privilege of personal contact with all the great explorers excepting Commander Scott, and of personal friendship with Greely, Peary, Amundsen, Shackleton, Nansen, Stefansson, Mawson, Bartlett, George Borup, Green, Ellsworth and, last but not least, with Byrd.

From my boyhood years I have been enthusiastic about exploration and, as far as I can recollect, my earliest scientific ambition to make a journey to the polar regions was aroused by meeting Dr. I. I. Hayes, a comrade of Dr. Kane on his first voyage and author of "The Open Polar Sea," a narrative of a voyage towards the north pole published in 1867.

My great predecessor, President Morris K. Jesup, ardently supported Peary's successive attempts to reach the north pole and at times when his courage slackened in the face of new and thrice repeated appeals for more funds he would say to me:

"Osborn, is this polar exploration really worth all that it costs, all the risks it entails in human life?"

I am glad to say now that I never flinched, but invariably encouraged with the assurance that every great human endeavor in an ideal cause lifts the whole world of mankind up to a slightly higher level not only of intelligence but of conduct. The heroism of all the great polar explorers from the time of Franklin to that of the ill-fated Scott endures as an immortal heritage for the whole human race, for we

have reached a point in human progress and civilization where scientific heroism is on a higher plane than military heroism or any form of physical valor.

Most explorers are born with an impulse such as animated Ulysses and his companions, which seems as irresistible as the migrating instinct of the bird. In it personal ambition and mere desire for fame and notoriety play a very small part. Hundreds of difficulties have to be overcome—personal as well as financial. In these critical moments of the explorer's life, I rejoice to recall that I not only had the privilege of backing Peary, but of exerting all the influence I could in favor of Vilhjalmur Stefansson and of Lincoln Ellsworth, whose father, an American citizen of the highest type, hesitated for many years before he consented to finance his son's flight over the north pole. It is one of the many tragedies connected with arctic exploration that James W. Ellsworth did not live to learn of his son's great achievement in company with Amundsen.

To our regret the American Museum was able to take little or no share in financing the Byrd Antarctic Expedition although we did all we could to aid in the scientific way as we have done in all explorations; on the personal side I have never thought more highly of Byrd than when he told me that the only thing which held him back in his project of a flight across the north pole was the appeal of his grandmother that he should not take the risk.

The American Museum, by its very constitution and by the very enthusiasms with which its founders endowed it, has been keen for exploration wherever the country or whatever the cost. Thus during the past fifty years we have encouraged, outfitted, and aided one ardent young explorer after another on his impulsive flight to the most remote parts of our planet. In many cases, like the Crocker

Land Expedition, ill-fated for it proved there was no Crocker Land to be discovered, we have borne the entire burden alone, as also in the case of the second Stefansson expedition.

Thus to the names of north and south polar explorers may be added the long list of all the young and eager men of our time who have been working on the continents, in the deserts, in the shallow and deep seas nearer home, in the oceanic islands of the Pacific and along the summit of the Andes, and in the unknown mountains of South America like Roraima and Duida. In our continental expeditions we have aroused nation-wide or world-wide interest as in the marvelously successful Central Asiatic Expedition into the Gobi Desert under the inspiring leadership of Dr. Roy Chapman Andrews.

In his personality and in the marvelous equipment of his expedition, Richard E. Byrd combines all that we have gained from the experience of previous polar explorations and all that modern mechanical science offers in the way both of transportation and of communication. As to character, the century since Franklin has taught us that absolute forgetfulness of self and devotion to the safety and welfare of one's companions are of the first importance in leadership. Byrd's plunging overboard to save one of his men probably did more for the morale of his expedition than any other single event or an unlimited amount of naval discipline, more even than his well-deserved promotion from the rank of commander to the rank of rear admiral.

From all north polar work and from Amundsen's successful dash to the south pole, Byrd learned that the Eskimo dog is the absolute mainstay of all over-surface work. From his own flight over the north pole, Byrd learned all the mechanical conditions essential to a still more perilous

flight over the south pole. In the selection of his wonderful party, Byrd carefully thought over the personal character of every member not only of his scientific and technical staff but of his coworkers, for he knew from the experience of previous parties that one man who shows the white feather or who displays one particle of selfishness can mar or retard an entire expedition.

Through the extreme cold, through the storms, and through the long winter night, the Byrd party were kept warm and enthusiastic and in absolutely united fellowship by this principle of always thinking of the other man first and with constantly increasing personal devotion to their leader. United and determined as certain other polar expeditions have been in the face of extreme difficulties, I am confident that no previous expedition has been animated with such absolute unanimity of purpose, with such unflinching team play, and with such intelligence and idealism as that under the command of Admiral Byrd.

Henry Fairfield Osborn

March 25, 1930.

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BYRD'S GREAT ADVENTURE

With the Complete Story of

POLAR EXPLORATIONS

ACKNOWLEDGMENTS

This volume is the result of exhaustive researches in the archives of historical and geographical libraries. It is the first time that the great human story of the thousand-year fight to conquer the ends of the earth has been told in one narrative of adventure.

We are indebted to the records left by the explorers throughout the centuries in their logs, diaries, and memoirs; to the invaluable records in the American Museum of Natural History in New York, American Geographical Society of New York, the National Geographic Society of Washington, the Royal Geographical Society of London, Government Archives of the various nations, where complete bibliographies and maps of all explorations are on file for public use.

The service of this book is to present the story of all polar explorations from their human side, as completely as possible within the compass of a single volume, up to and including the epoch-making adventures of Rear Admiral Byrd. It furnishes the background to his notable achievements with an historian's analysis.

Grateful acknowledgment is made for courtesies granted by The World Publishing Company and the World Almanac; The Americana Corporation, The Philadelphia Bulletin Company and the Bulletin Almanac, and we would especially acknowledge valuable services rendered by Mr. J. Alden Brett, Mr. Jonathan Daniels, Major General Adolphus W. Greely, member of the Board of Trustees of the National Geographic Society, Dr. Henry Fairfield Osborn, President of the American Museum of Natural History, and the Board of Historical Foundations.

Wild and wide are my borders, stern as death is my
sway,
And I wait for the men who will win me, and I will
not be won in a day;
And I will not be won by weaklings, subtle, suave,
and mild,
But by men with the hearts of vikings, and the simple
faith of a child, ...
Send me the best of your breeding, lend me your
chosen ones;
Them will I take to my bosom, them will I call my
sons.

From *The Law of the Yukon*

Chapter I

THE FIGHT TO CONQUER THE ENDS OF THE EARTH

THIS is the story of the world's greatest adventure, the fight for the ends of the earth. It is a heroic drama of human courage and daring, of suffering, tragedy, and triumph, which began with the Greeks three centuries before Christ. Amid the tumult and acclaim of modern civilization, it comes to its glorious climax in the year of 1930 with the triumphant return of the final conqueror of the top and the bottom of the world.

Richard Evelyn Byrd started upon his adventure a commander; he returns a rear admiral. He is the first man to fly over the north pole, the first man to fly over the south pole, the only man to fly over both ends of the earth—and furthermore to fly the Atlantic Ocean from the Western Hemisphere to the Eastern Hemisphere. He is undoubtedly the greatest living explorer of any nation.

His explorations in Antarctica add another chapter to his unparalleled achievements. As an explorer of the air he takes his place with the great pioneers of a thousand years who sailed in the ships of the sea to solve the mysteries of the Unknown World.

The simple records which came by wireless from Admiral Byrd's base in the Antarctic were but the beginning of his epoch-making revelations. His logs, in which are recorded exclusively his official reports to the institutions and organizations allied with his expedition, form important pages in world history. His own story of his flight

adds to the invaluable literature of exploration.* The purpose of this narrative is to do for him what he cannot do for himself in his memoirs: to determine the historical import of his achievements by fixing his position in history with the thousands of men who preceded him in the great battle to unlock the secrets of the poles.

In the story of this battle can be found all the elements of heroic romance and tragedy. Against a background of suffering almost beyond human comprehension, of gaunt starvation and of lingering death, it is possible to see clearly the true status of present-day civilization as exemplified by Byrd, who, with the aid of modern science, was able to accomplish in a few hours of comparative comfort what more than ten centuries of blood trails failed to do.

"New worlds to conquer!" has been the cry of adventurous man since the beginning of history. Slowly, foot by foot, man has fought his way over the expanses of the earth, carrying the torch of civilization into the farthest corners of the globe. He has dared the tempests of the seas, blazed the trail through the mountain gorges, scaled the highest peaks, penetrated the forests, explored the rivers, fought his way step by step against savage tribes and beasts. He has discovered new lands, set up new nations, developed the riches of the continents.

The age-long fight for the ends of the earth has been a war against the most formidable foe that has ever challenged the courage and endurance of man. The earth has been the battle ground—the fighting distance 12,427 miles —the goal at each end 90°, where time and space converge and neither miles nor minutes exist.

* Byrd's official reports were published exclusively in the *New York Times*, *St Louis Post-Dispatch*, and newspapers allied with the Byrd expedition, including reports of Russell Owen, official historian.

For ten centuries the nations of the world have raced to plant their colors at these goals. Man has reached 60°—70°—80°—only to fall back beaten. At the edge of the impenetrable barriers of ice that ring the goals, explorer after explorer has met defeat. Man after man has gone to his death among the fearful canyons and chasms of the glaciers. Ships have sunk, crushed amidst the pitiless floes of these ice-locked seas. Expeditions have sailed hopefully into the vastness of this Great Unknown—never to be heard from again.

Strange as it may seem, considering the vastness of the area and the thousand years of struggle and combat, the momentous polar victories have been won in spectacular final races between the contestants in a tournament of 365,000 days. Amundsen of Norway, victor at the south pole, beat Scott of England by only thirty-five days. Byrd for America flew over the north pole just three days before Amundsen did it for Norway. There was caprice of destiny, too, in this life drama. The man who had won at the south pole on the ground was beaten at the north pole in the air by the man who was soon to go to the other end of the earth and score another aërial victory.

The two men, Amundsen and Byrd, friendly rivals, clasped hands in the Arctic, one to go to his death in a noble effort to rescue his bitter enemy, Nobile, and the other to his second great triumph. Byrd was the only man to fly over both poles. Byrd, Amundsen, and Wisting are the only men who have seen both poles—three men only of the uncounted multitudes who have sought the victory, three men only of the thousands who have gambled and lost!

No war with all its horrors and its heroism surpasses the story of these fighting men. With unselfish devotion and without hope of great reward, they left their families

and homes to embark on voyages often lasting from three to five years. Survivors returned, lifelong cripples with arms, legs, noses, ears frozen off, flesh slowly rotting with the scurvy, intelligence turned by suffering to madness. And year by year others stepped forward to take their places.

The "Great Byrd of the Skies," riding the clouds, in constant communication with the outside world, over ghostly scenes of human sacrifice must have thought of these men, and of their commanders, who had so often gone bravely to their deaths—alone.

Magellan was killed by savages. Captain James Cook was murdered in cold blood by natives in Kealokeakua Bay. Henry Hudson was set adrift by his mutinous crew and drowned in the sea which he had opened. Captain John Knight was murdered by the natives on the coast of Labrador. Willem Barentz, with many of his men, died of cold and hunger on a floating ice raft in the arctic seas. Commanders Willoughby and Derfouth perished with all their crew on the northern coast of the Kola Peninsula. The Russian commanders, Alexief and Ankichinof, each perished with his crew in ships caught in the ice. Sir John Franklin was lost with more than a hundred men, skeletons found in a boat telling the ghastly tale.

Could anything show more clearly the tremendous advance of modern science than the contrast between Byrd's comparatively brief and wholly successful trip to the poles and the experiences of his predecessors? Charles Hall, for example, who took passage on a whaling vessel in 1860, landed with his scant supplies in the region north of Hudson Bay and remained there alone for two years, seeking among the Eskimos traces of the lost men of the ill-fated Franklin expedition, and finally died a raving maniac, his last ship nipped in the arctic ice.

These are the thousand and one tales that form the background against which Byrd stands. Sir Douglas Mawson set out in the Antarctic with two men. One of them, B. E. S. Ninnis, with his dogs and a provision sledge, plunged to his death in a hidden crevasse through the breaking of a snow bridge. The other, Dr. X. Mertz, died delirious from hunger. Mawson was left alone on the boundless plateau, weakened by hunger, in constant danger from snow blindness. Falling into a bottomless crevasse and hanging suspended above its yawning depths by fourteen feet of sledge rope, somehow he pulled himself out and staggered onward. Only the providential finding of a cache of food saved his life till rescue came.

The intrepid Lieutenant A. W. Greely saved only six men from his crew of twenty-five. Rice, of his expedition, traveled fifteen miles in the darkness, over ice that cracked and bent under his feet, to bring help to his freezing comrades. Greely, himself, shared portions of his own food with his weaker comrades and melted snow with the scant warmth of his own body that they might have water to drink. One man, driven by hunger, repeatedly stole bits of sealskin, the only remaining food, and was shot for his disloyalty to his comrades.

Within our own times there has been Shackleton, who, with five men, launched a small boat in a raging sea and made a fearful voyage of nearly a thousand miles to bring rescue to his men, marooned on Elephant Island. Later, worn by hardships, he died on board his ship at the outset of his last expedition. There has also been the grave face of Captain Oates of the Scott expedition as he walked deliberately out of the camp to his death in a howling blizzard in order that he might help to conserve food for his comrades and enhance their waning chance of rescue.

At Spitzbergen, the outpost of the Arctic, is the most northern cemetery in the world. Here, on his way to the north pole, Byrd stood on the frozen ground where thousands of stalwart men had ended their struggle only ten degrees from the top of the world. Here they lie in "a cemetery without epitaphs, without monuments, without flowers, without remembrances, without tears, without regrets, without prayers; a cemetery of desolation, where oblivion doubly environs the dead, where is heard no sigh, no voice, no human step (except the tread of new explorers); a terrifying solitude, a profound and frigid silence, broken only by the fierce growl of the polar bear or the moaning of the storm."

The nations—England, Norway, Portugal, Denmark, Sweden, Russia, France, Germany, Austria, Japan, Holland, Italy, and the United States—each in turn has striven to hold the record of the farthest north. England set it at 73° N. Barentz for Holland advanced it to 80°. Hudson for England pushed it up to 81° 30′. Parry for England made it 82° 45′, where it stayed for nearly half a century. Greely for the United States carried it to 83° 30′. Nansen for Norway planted his flag at 86° 5′. Peary for the United States went first to 87° 6′ in 1906 and later to final victory, reaching 90° N., the north pole, April 6, 1909. Less than three years later, Amundsen planted the flag of Norway at the south pole, December 14, 1911, and the race came to an end.

But the new Age of the Air had already commenced. The race of the nations began all over again. Despite modern science, it, too, was a race in defiance of death. The slip of a cog, the skip of a motor, the treachery of an air pocket, the brewing of an antarctic storm, the miscalculation of speed or distance, a hair's-breadth infraction

of mechanical laws or error of human intelligence and the flyer faced certain death in the ice. Here was a new challenge to the courage and genius of man.

What nation would be first to fly over the ends of the earth and drop its flag at the poles? The race this time covered comparatively few years. America won both goals, and with the same adventurer, Byrd, the Twentieth Century Crusader of the Clouds.

Chapter II

LITTLE AMERICA AT THE BOTTOM OF THE WORLD

THE START of this great adventure—how Byrd and his pioneer comrades reached this world which has lain unchanged for hundreds of thousands of years since the Tertiary Age—is in itself a tale of stirring romance.

On Thanksgiving Day, 1929, Little America, the ice-locked outpost of civilization, was the Plymouth Rock of the vast new continent of Antarctica. Twenty-three hundred miles from the nearest human habitation, its population of forty-two adventurous pioneers was about half that of the sturdy settlement on the rock-bound coast of North America three centuries before.

These twentieth-century pioneers had set out across turbulent and treacherous seas to establish their settlement on the edge of the Unknown. Instead of the log cabins of old, they had erected portable houses brought with them from home. Like the Pilgrims they had established a society based on the highest principles of self-government. The absence of women and the presence of elaborate scientific equipment marked the differences between the two colonies. One came to the coast of New England to establish a new life in a new continent; the other came to seek scientific knowledge on a continent where independent life cannot exist.

There, in Little America, thirteen months after he had sailed from the shores of the United States on his

FACSIMILE AUTOGRAPHS OF THREE GREAT EXPLORERS



REAR ADMIRAL ROBERT E. PEARY
Discoverer of the north pole.



© *Wide World*

ROALD AMUNDSEN
Discoverer of the south pole



© *Wide World*

REAR ADMIRAL RICHARD E. BYRD

First to fly over the north pole and the south pole—the top and the bottom of the world

famous expedition to "chart new dominions" for his country, was Commander Richard E. Byrd, a prisoner of the elements. Behind him was an impenetrable ice-locked sea, through which at that time of the year no ship could fight its way. Before him was a vast and trackless glacial continent. Above him, Ross Barrier rose like the ramparts of a medieval fortress of crystal, its top eaten by winds into turrets and battlements from whose tempest-smitten heights streamed banners of swirling snow, while at its base, the sun struck upon the entrances of dark and dismal caverns, donjon keeps where lay imprisoned the gigantic ice demons of the fierce antarctic world, the mysterious forces whose roars of rage and groans of agony terrify the heart of every explorer.

Fittingly called the "Eighth Wonder of the World," Ross Barrier is a sheer wall of ice, 460 miles in length, 400 miles wide, with an average height of 160 feet. At points it attains an altitude of more than 300 feet. No one knows what lies beneath it, whether a chain of islands, solid land, or open sea. Shackleton refused to risk his fate on the barrier, fearing that portions of it might break away and carry isolated members of his party back to sea in the lashing gales. Amundsen staked his fortune on the belief that it rested upon land and set up his antarctic home, "Framheim," upon it.

A modern Columbus with three ships, Byrd had sailed from the warm autumn sun of North America on his voyage into the frigid Antarctic. In his flagship, the "C. A. Larsen," on October 11, 1928, he passed the Golden Gate of the harbor of San Francisco, to break through the ice-packed seas to the bottom of the world before the blasts of the southern winter should lock them against the genius of man. A former whaling vessel, his flagship was especially

built to withstand the terrific battering of the wind-driven ice. Enormous cross timbers of weathered oak braced it to combat the fearful pressure of closing floes when caught in a "lead." The bow was more than six feet in solid thickness and was sheathed with iron to act as a wedge or ram in hammering its way through the ice, which was often three feet thick. The "City of New York," formerly the "Sampson," and the "Eleanor Bolling," once the "Chelsea," had preceded the "C. A. Larsen" down through the Atlantic and the Panama Canal into the Pacific Ocean, while an auxiliary ship, "Sir James Clark Ross," had carried supplies to New Zealand.

Aboard these ships, were seventy-seven men—scientists, aviators, pilots, radio operators, officers, mechanics, and crew. Three airplanes were carefully stowed away for the voyage: the "Floyd Bennett," named after the martyred comrade who had flown with Byrd over the north pole; the "Virginian," christened after the Commander's native state; and the "Stars and Stripes." Seventy-five dogs, trained on the arctic trails for sledging, barked and howled in kennels built for them in the ships, among them the famous mascot, "Igoe," who had been with Byrd on his arctic adventure—a distinguished beast, the first dog to fly over the north pole.

The ships were loaded to the gunwales with the largest and most modern scientific and operating equipment ever taken on any voyage of exploration. Every available space, even to the decks, was packed with supplies of all descriptions. Each of the three airplanes had more than two thousand parts, and duplicates of each part were carried. No chance was taken that the success of the entire expedition be imperiled by the loss of a single irreplaceable bolt or screw. There were caterpillar tractors for hauling

the planes about at the base. There were radios and equipment for erecting an efficient transmitting station. There were short-wave sets with hand generators for the airplanes and dog sledges. Carefully stowed away were thousands of feet of wire, hundreds of pounds of tools, the bulky air-mapping camera, the moving-picture cameras, thousands of feet of film, hundreds of boxes of chemicals and dark-room equipment.

Delicate scientific instruments occupied much space in the vessels. There were instruments for geological investigations, meteorological instruments, navigating instruments, all of the most modern make and design. With them the scientists would measure unmeasured depths, map unmapped regions, register the highest wind velocities, and record the coldest temperatures in the world. In endless profusion the fleet carried thermometers, chronometers, theodolites, barometers, compasses, sledge meters, telescopes, and binoculars. There were medical and surgical supplies; fishing gear, guns, and ammunition; sledges and harness for the dogs; primus stoves, sleeping bags, snowshoes, skis, fireworks for signaling, flags, stationery, a carpenter's outfit, a blacksmith's outfit, and canvas for repairing tents. There were maps, and libraries of technical books and works on former explorations. There were ice saws, ice picks, axes, shovels, ski poles.

Hundreds of tons of coal for the vessels filled the bunkers. Barrel after barrel of gasoline for the planes and tractors, oil for the lamps, and paraffin for the primus stoves were stored in the holds of the various ships. Quantities of alpine rope for climbing wind-swept crags hung below decks. For the men who were to remain in Little America with Byrd there were coats of reindeer skin, trousers of bearskin, sealskin gloves, woolen blankets and

underwear, shoes of hide, hair clippers and shaving soap, tobacco for a year and a half, the phonograph and the banjo.

And food—food was everywhere—food for the forty-two men for a year and a half. Everything from the sledging ration of pemmican to Christmas plum puddings—tinned meats, tinned vegetables, tinned fruits. And there was food for the howling, ravenous dogs, hundreds of bags of dog's pemmican. In all this mountain of supplies, packed, wedged, and jammed into these ships, what had Byrd forgotten?

This was the Golden Argosy which sailed with its modern Argonauts over the blue Pacific into the path of Wilkes, retracing the route of the American discoverer of the antarctic continent. It followed where Wilkes had gone decades before, through flaming tropic seas, past the Solomon Islands, where early sealing vessels rendezvoused and pirates buried their blood-stained spoils. The modern explorers sailed on past the Samoan Islands, where Robert Louis Stevenson died beloved by the natives whom he had defended from oppression, and came at last to New Zealand, where Wilkes had found tattooed cannibals. Two months passed. They sailed on until the tropics were far behind. Through blue, coral-strewn waters, under crimson skies they came at last to the edge of civilization, and as one fleet the vessels of the expedition united on December 11, 1928, at the bleak and volcanic Scott Island, just over the edge of the antarctic circle.

In December, month of the chill antarctic summer, they sailed on the last leg of the long voyage. The "Eleanor Bolling," after transferring eighty-seven tons of coal to the "City of New York," had returned with her twenty-two men to the port of Dunedin, in New Zealand. Two ships, the "C. A. Larsen" and the "City of New York,"

plowed on toward the south. Then on December 14, the seventeenth anniversary of Amundsen's discovery of the south pole, momentous words swept across the decks of the ships.

"The ice pack! The ice pack!"

The first real battle against the elements was begun. Years before in those same seas Captain Ross had counted eighty-four huge icebergs and hundreds of smaller ones which were visible from his masthead at one time. In the same ice pack Shackleton's ship was held prisoner for fourteen months before she was finally engulfed. Hurley of that expedition described the desperate plight of the crew stranded on a drifting ice floe.

"We gazed spellbound on a terrifying spectacle," he wrote. "Furious warfare was raging on one of nature's age-old battlefields. We had reached the northern limit of the ice pack, where the endless streams of ice cast adrift from the polar continent were being lashed back remorselessly by temperate seas. Here the conclusion of a cycle in nature's equilibrium was taking place. The ice packs, pounded up and eroded by wave action, were returning to their primal element.

"Around us churned the mill of the world. Gnarled old ice floes, weather-worn bergs, fragmentary stumps and decayed ice masses, crowded together in one heaving, rolling grind. To the girdling horizon stretched this tempest-ridden and battling confusion. It was sublime—irresistible—terrible. Our rocking floe was suffering the fate of its neighbors. We experienced a series of sickening impacts as its ramparts were torn asunder. What helpless atoms we felt—mere human flotsam caught in a maelstrom of unlimited power and separated from eternity only by a thin partition of crumbling ice."

"Southward Ho!" Byrd's ships sailed on—through treacherous tides, where sea elephants, huge mammals weighing up to four tons, charged wildly; where the sea lion and the sea leopard roared above the elements; where the killer whale pursued its prey, which fled wildly before this terror of the deep; and where sea monsters that had come down from prehistoric ages carried on their continuous warfare. "Southward Ho!" Through the "Roaring Forties," the "Furious Fifties," the "Shrieking Sixties," they sailed on to the Land of the Blizzard.

Twenty-three days passed. Christmas Day was spent at sea. On January 6, 1929, Ross Barrier, awesome in its grandeur, loomed into sight. The two ships sailed into the Bay of Whales on the coast of Antarctica.

Commander Byrd, master of organization, immediately led his comrades into activity after the days of cramped life aboard ships. Scientific paraphernalia was set up and adjusted for use. The airplanes were tuned up. In less than ten days the drama of exploration had begun. Byrd himself was in the air; the "Stars and Stripes" and the "Virginian" were flying on the first scouting expeditions.

The first discovery in the uncharted country was named Marie Byrd Land after the wife of the explorer. On January 18, the Rockefeller Range was charted. By the twenty-fifth of January, the radio station was in operation, and communication with New York had been established by the first two-way code in the world. Two days later news was flashed to the world that Byrd on his second flight of exploration had discovered a new island and fourteen mountain peaks in a five-hour reconnaissance in the air.

On January 28, the "Eleanor Bolling," the only steel ship to touch the antarctic continent, arrived from New Zealand. While she was depositing her supplies, the first

accident of the expedition occurred, when huge blocks of ice broke and fell from the barrier, nearly swamping both the "Eleanor Bolling" and the "City of New York." The shock of the impact threw one man overboard. Commander Byrd himself saw the man struggling and. jumping into the freezing waters, went to his assistance.

Through drifting ice, February 14, Byrd endeavored to reach King Edward VII Land by sea. Failing to do so, he returned to Little America with the "City of New York" and again flew over the territory, discovering a 10,000-foot peak on February 18, and two new mountain ranges. At the same time he explored a new area, approximately 40,000 square miles, and claimed it as United States territory.

Then suddenly, while they worked and explored and made plans for the fulfilment of the chief object of their expedition, with a roar of screaming rage a blizzard came upon them. Caught in its grip, Little America on March 10 was in danger of being swept into the sea or entombed in snow and ice, while far away in the Rockefeller Range, a geological party under Professor Lawrence Gould was snow-bound among the towering peaks. On March 10 the Gould party's airplane, the "Virginian," had been torn from its moorings and totally wrecked by the gale. From the mountain tops around them blinding snow swirled and swooped with demoniacal force. At a speed frequently exceeding two hundred miles an hour, a mighty blizzard swept on a path of desolation, tearing the snow mantles from the mountain tops with savage vengeance and scouring their surfaces till they became polished granite with edges sharp as knives. The men could not stand before it. If caught in its wake, they could only crawl along the frozen snow, nearly prostrate, in constant

danger of being hurled against the ice barriers, borne over a precipice, or flung down with a force that would shatter every bone.

Silence and anxiety settled over Little America. In the face of the storm, it seemed hardly possible that the snow-bound men with Gould could ever come safely back to the post. Any attempt at rescue from Little America would be full of peril. But as the storm subsided Byrd insisted on going. The airplane was tuned by careful mechanics and Commander Byrd headed into the storm. If the tail of the blizzard caught him, he would be lost. Men at Little America watched him climb up into the clouds and head straight toward the Rockefeller Range, where Gould had gone. They watched as plane and man disappeared in the frozen skies. Two days of deathlike silence followed. On the third day, while his men watched, Byrd, with Gould and his two companions, dropped suddenly from the clouds, safe out of the storm.

The antarctic winter had come, those frozen months which coexist with summer in the Northern Hemisphere. Antarctic night settled down upon the explorers. Imprisoned by eternal dusk and unrelenting cold, they occupied themselves with meteorological experiments and scientific calculations. In the precision of daily activities, not an hour was wasted. Six months of night passed and faded under the midnight sun. The wan polar spring came imperceptibly, and the long day dawned. The time had arrived for the flight to the pole.



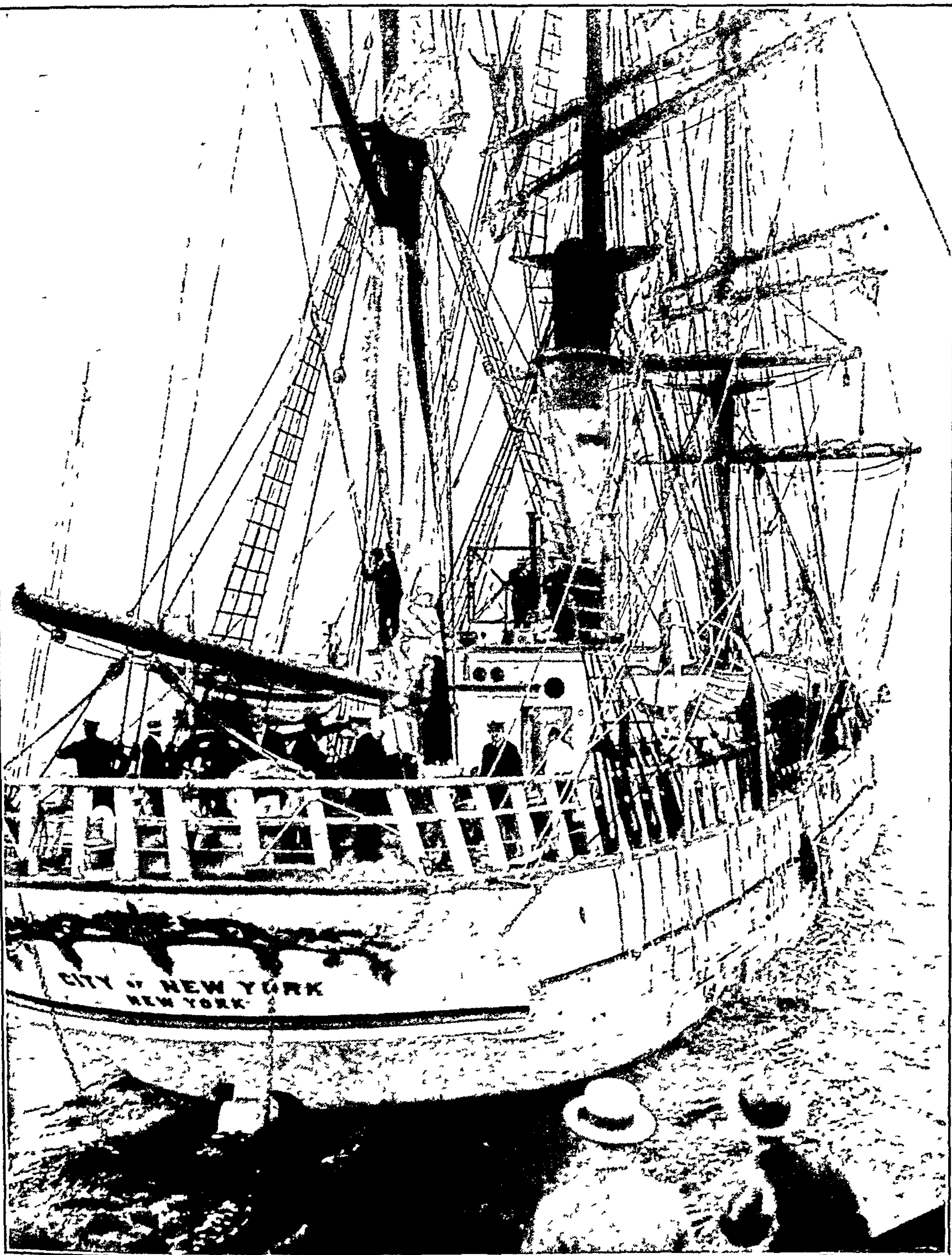
BYRD'S THREE CHILDREN WITH THEIR FAMOUS "DADDY"



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BYRD'S MOTHER AND HER FAMOUS SON

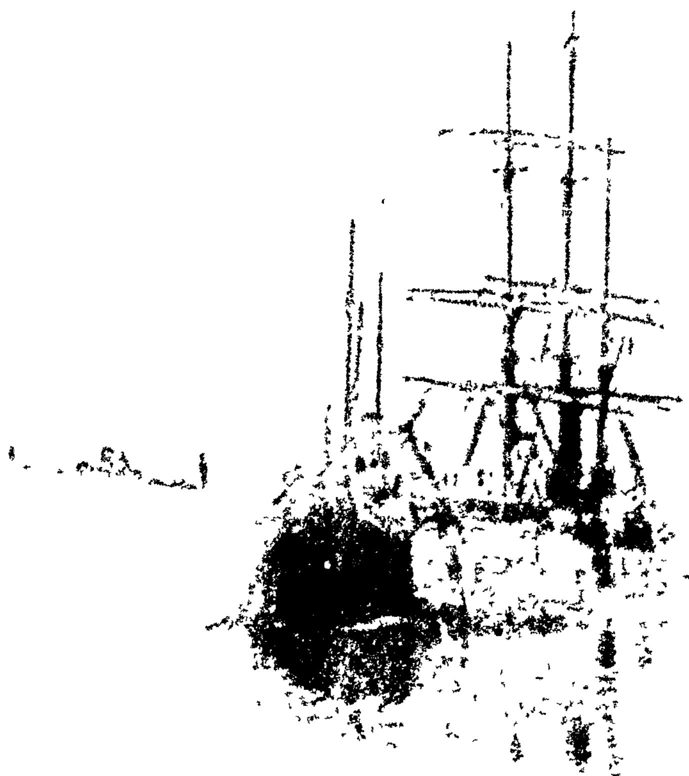
This distinguished Virginia mother kept in touch with her son at the bottom of the earth by radio.



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"CITY OF NEW YORK" ON HER 13,000-MILE VOYAGE

Little America, Byrd's antarctic base, was established in Antarctica, January 6, 1929, 2,300 miles from any other human habitation



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INSIDE THE ICE PACK AT THE BOTTOM OF THE WORLD

The ships "Eleanor Bolling" and "City of New York" against Ross Barrier.

Chapter III

BYRD'S HISTORIC FLIGHT OVER THE SOUTH POLE

SILENCE brooded over the continent of Antarctica, a great white silence of awe-inspiring beauty. In every direction rose forbidding peaks of sentinel mountains, their snow caps glistening like jewels set above slopes swept bare by antarctic hurricanes. Colossal beyond belief, blocks of ice weighing thousands of tons were piled everywhere in unspeakable confusion as though ripped and torn by frightful convulsions of nature. In the midst of the undulating plain, stood yawning chasms with no perceptible bottom to their fearful gulfs; while intermittently other great cracks opened in the solid ice, shaking the earth with deafening reports, like the cannonade of hundreds of big guns. No living thing moved across the desolate wastes. This scene, terrifying in its menacing grandeur, first appeared to man through the eyes of Commander Wilkes of the American Navy when he discovered the continent of Antarctica, and here ninety years later Commander Richard E. Byrd prepared to reach the south pole through the air.

At 3.29 P.M., Thanksgiving afternoon, 1929, in Little America, four men boarded the big trimotored monoplane "Floyd Bennett." A roar of the motor, a whir of the propeller, and the huge ship of the air, the materialization of five thousand years of human ingenuity, rose into the crystal skies on the first flight to the south pole in the history of the world. Commander Byrd flew in command.

At the controls was Byrd's comrade on the transatlantic flight, Bernt Balchen, whom he first met with Amundsen at the other end of the earth. Harold I. June at the radio flashed back to Little America the progress of the voyage. Ashley McKinley operated the surveying camera, making the first air photographic record of the vast area below them. As they flew on, with the impenetrable ice jam forming a prison wall behind them, the four men, dressed in skins and with fur headpieces, gazed steadily below at the white trail to the south pole.

Winging their first swift miles through the dazzling whiteness, they knew that every practical and scientific precaution had been taken. Commander Byrd himself had attended to each detail of the problems of their flight. The plane, carrying fifteen thousand pounds in weight, bore a food supply sufficient to last three months. Six weeks before, a supporting party, headed by Lawrence Gould, had started south by dog team. In addition, depots had been established along the route. On the final trial flight the week before, Byrd had taken the "Floyd Bennett" to the last depot at the base of the Queen Maud Mountains and left there the final instalment of supplies. Confidence in the success of the flight to the pole had been increased in the four men by the fact that when Byrd, on that trial flight, ran out of gasoline ninety-five miles out of Little America, the plane "Stars and Stripes" had answered his radio call for a fresh supply and he had returned in safety. Perhaps the men felt good omen, too, in the fact that beneath them was the trail which the great Amundsen had taken when he made his dog-sled dash to the discovery of this same south pole.

Far on the right, on the same desolate coast beneath them, Scott and Shackleton had left their tragic trails in

the race to the pole. In his mind's eye Byrd must have seen the ghost trails of these three dead explorers, their phantom dogs tugging at their sledges, hot breath steaming the frigid atmosphere, sleds slipping and sliding into crevasses, men shouting as the vision was lost in a whirlpool of fantastic snow.

Ross Barrier fell away behind the great plane in long, regular undulations. At the foot of the mountain range, 304 miles south of Little America, the advance post was sighted and a weighted bag was dropped containing messages and photographs with information for Gould and his party as to the direct route to the nearest depot of supplies.

The plane roared on, passing over the site of Amundsen's historic camp, "The Butcher Shop," where the Norwegian had been forced to slaughter twenty-four of his dogs to conserve his food supply. The journey which had taken Amundsen more than three weeks, Byrd had made in almost as many hours. Along the route over which the "Floyd Bennett" flew so steadily, Amundsen had struggled to find a path between enormous spires of jagged rock. Frustrated time after time by deep crevasses into which his men and dogs fell, he had renewed his attempts unceasingly in other directions.

Then like impregnable bulwarks, towering 15,000 feet, the Queen Maud Mountains, capped with eternal snow, stood straight ahead in the pathway of the plane. Over them Byrd soared where Amundsen had crawled. But here Byrd, too, met danger. His chosen course carried him up a deep gorge between two of the colossal peaks that stood like challenging guards at the gateway to the polar plateau. Through this gorge the wind swept with terrific violence, tossing the heavy plane from side to side like a leaf in a winter gale. With a load too heavy to

clear it, the "Floyd Bennett" headed straight for the "hump" of the peak. At full speed the four men flew toward death. A miscalculation, a moment's hesitation, and the plane would crash. Throwing overboard the precious bags of food, until three weeks' supply lay scattered over the surface of the great glacier, young Balchen steered close to the mountain side a moment, and then, catching the full upward force of the air current, the great machine cleared the surface of the peak.

Rushing down the slopes beyond in one of the most difficult journeys in the world, Commander Byrd passed at the rate of a hundred miles an hour over the Devil's Glacier, with its wild and terrible crevasses, across which Amundsen and his Norwegians had crawled with the utmost difficulty. Here in the Devil's Ballroom, Bjaaland had fallen into a bottomless crevasse and had escaped from death only by grasping at a loose rope hanging from his sledge. Again and again, dogs, sledges, and men fell through the deceptive snow bridges which were the only passes across the chasms. None of Amundsen's party knew at what moment he would be precipitated through the malicious snow-covered cracks into an abyss. There could be no rescue for man or dog who fell into one of them. Brave Norwegian that he was, Amundsen was awe-stricken by the whole region. "There was something uncanny," he wrote in his diary, "about this perfectly blind advance among crevasses and chasms on all sides—the ice so ground up and broken that there was positively not a spot where one could set one's foot. It looked as if a battle had been fought there, and the ammunition had been great blocks of ice. They lay pell-mell, one on top of the other, in all directions, and evoked a picture of violent confusion."

Over Hell's Gate, the largest of these age-old fissures, Byrd zoomed at more than a mile a minute straight into a thrilling splendor of color—blue, black, red, and white. Mount Nilsen appeared with its great glaciers moving down its glistening slopes, its sharp peaks wind-worn into shapes of grand and terrible beauty partly covered by driving clouds changing form and color every moment. Then the men in the plane saw Mount Helmer Hanssen, an unforgettable landmark with its top "round as the bottom of a bowl covered by an extraordinary ice sheet, so broken and disturbed that its blocks of ice bristled in every direction like the quills of a porcupine burning and glistening in the sunlight." In rapid succession came into vision Mount Wisting, Mount Hassel, Mount Bjaaland, all named after Amundsen's comrades on that desperate journey, each a spectacle of breath-taking beauty as it rose in virgin dignity.

From the gorge, the plane came out above a vast plateau which stretched far away to where, in the distance to the west, a rim of encircling mountains sparkled like diamonds in the rays of the morning sun. No cloud betokened that brewing storm which broke only a few hours after the "Floyd Bennett" landed safely again in Little America. Before him, running north and south, Byrd discovered a new mountain range, part of that territory which would be added to the United States by the expedition.

Plateau and mountain range passed; a new magnificent vision greeted the eyes of the four explorers as they emerged over that table-land, 9,000 to 10,000 feet above the level of the sea, which forms the center of the Antarctic continent. One immense stretch of prehistoric ice, vast and silent, it is the largest desert on earth. With a mean annual temperature of 35 degrees below zero, it is

the most intensely cold region in the world, ten degrees colder, even during the summer months, than the north pole. No rain ever falls, all precipitation occurring in the form of snow It was to the severe and frequent storms in this home of the blizzard that Scott succumbed.

As he crossed the long plateau, Byrd made constant observations to check his position. Time and longitude were changing almost momentarily now. The plane was flying 2,500 feet above the earth. The temperature was 15 degrees below zero. Positions had to be made both by dead reckoning and by observation. As Commander Byrd checked his observations, every man in the plane was moved by subdued excitement. Suddenly the men gripped the Commander's hand. It was 1.25 A.M., in the Land of the Midnight Sun, and June, at the radio, was flashing back to Little America, and on to North America and around the world, Commander Byrd's laconic message:

"My calculations indicate that we have reached the vicinity of the south pole."

The "Floyd Bennett" flew six miles to the right, turned, flew six miles to the left, circled around and returned to the point where all the meridians, those imaginary lines that man has visioned for convenience of reckoning, met. Here time and space converged. The great plane had reached the south only to find there was no south. Everything pointed due north and even time was confusion. The 165 meridians met at a needle's point, to start off each one on its own scale of minutes and hours. Here in one moment, it was yesterday, today, and tomorrow.

The four men in the plane stood at attention and saluted in one of the noblest tributes ever paid to the dead in all the world's history. They saluted in memory of Floyd Bennett, who if he had lived would have piloted

this ship over the south pole, as he had piloted the "Josephine Ford" over the north pole. Through a trap-door a silk American flag, weighted with a stone from his grave, was dropped to the earth. A British flag followed in memory of Robert F. Scott, a Norwegian flag for Amundsen, and the flag of France in honor of the French people. A last glance at the bottom of the earth, where the four flags lay, and the "Floyd Bennett" headed northward.

The plane followed the Axel Heiberg Glacier, which formed a vast broken plain of ice beneath the frowning summits of the great mountains. At its southern end stood Mount Ole Engelstad and Mount Don Pedro Christophersen, and at its western edge rose the broad, ice-bound sides of Mount Fridtjof Nansen. Its age-old chasms were for the most part filled with frozen snow and sleet. Upon its precipitate sides frequent avalanches which discharged huge masses of snow and ice had threatened to bury Amundsen as they rushed down the steep slope at express-train speed. On its slopes Amundsen had encountered a screaming blizzard which forced him to seek camp at a depot which he had built on the surface. Following this immense river of ice, Byrd descended the mountain range and decided to land and refuel at Depot No. 8, where the Gould party had been conducting geological explorations and collecting specimens. After an hour at this depot, he took off without difficulty, bound for the Bay of Whales.

At 10.10 A.M., November 29, 1929, the "Floyd Bennett" glided to earth. Little America was a scene of wild celebration.

With modern methods and inventions, Byrd and his comrades had covered 1,600 miles in 18 hours 55 minutes. In less than one day they had made the trip that had taken Amundsen with his dogs and sleds 148 days of

laborious and dangerous journeying. They covered as much distance in an hour as Amundsen had made in six days, traveling 15 miles a day. First to reach the north pole, April 16, 1909, Admiral Peary journeyed 153 days to the nearest telegraph station at Indian Harbor, where he sent out his message of success. Byrd's message reached New York in a fraction of a second and was flashed around the world at the speed of light.

When the brief message was received in Washington, the scene was one of justifiable national pride. American Naval Commander Byrd had crossed the south pole in the air, a new victory for the Stars and Stripes on the far outposts of civilization. President Hoover and his Cabinet declared it a magnificent Thanksgiving Day gift to the Nation. Mr. Hoover immediately issued a personal proclamation in the form of a dispatch to the Commander, which was released officially to the entire country and flashed by radio to the Byrd expedition in Little America:

COMMANDER RICHARD E. BYRD,
LITTLE AMERICA.

I know that I speak for the American people when I express their universal pleasure at your successful flight over the south pole We are proud of your courage and your leadership. We are glad of proof that the spirit of adventure still lives.

Our thoughts of appreciation include also your companions in the flight and your colleagues, whose careful and devoted preparation have contributed to your great success.

HERBERT HOOVER

The Navy was jubilant. Admiral Charles F. Hughes, acting Secretary, and Rear Admiral Moffett, in charge of naval aëronautics, praised the achievement. Assistant Secretary of War F. Trubee Davidson added the Army's tribute. Vilhjalmur Stefansson and Major General A. W. Greely voiced the enthusiasm of explorers. Diplomats and scientists hailed the achievement as one of the great



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BERNT BALCHEN, CHIEF PILOT OF THE BYRD ANTARCTIC EXPEDITION

With Byrd in command, he piloted the historic monoplane "Floyd Bennett" over the south pole, November 29, 1929



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HAROLD I. JUNE, CHIEF RADIO OPERATOR OF BYRD'S EXPEDITION.

He held his post at the radio on the "Floyd Bennett" and reported its progress continuously to the expedition base at Little America.



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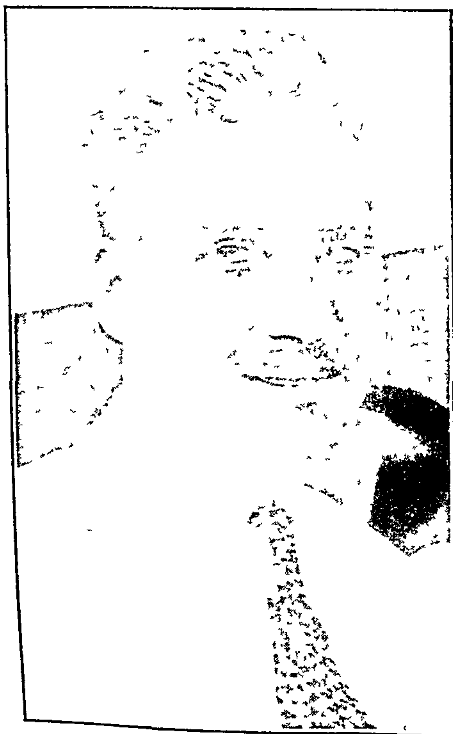
THE FAMOUS GEOLOGIST OF THE BYRD EXPEDITION, DR. LAWRENCE A. GOULD

He discovered a valuable coal strip on Mount Nansen in Antarctica, inlaid with the sandstone

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BYRD CONSULTS WITH THE CHIEFS OF HIS STAFF

Ship Engineer McPherson (left), Chief Supply Officer Alexander, Byrd, Surveyor O'Brien (right)



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AVIATOR DEAN C. SMITH

He flew over many miles of hitherto unexplored territory in Byrd's conquest of the Antarctic



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CHIEF ENGINEER THOMAS MULROY

An associate in Admiral Byrd's expeditions to the north and south poles

events in world history. Dr. Gilbert Grosvenor, president of the National Geographic Society; Dr. Isaiah Bowman, president of the American Geographical Society; Dr. Henry Fairfield Osborne, president of the American Museum of Natural History; Dr. Lee de Forest, radio pioneer and inventor; Glenn Curtis, pioneer aviator; Governor Franklin D. Roosevelt of New York; Ford Thomson, British Air Secretary; and Colonel Charles A. Lindbergh all expressed appreciation and congratulation.

From Virginia came the simple message:

I knew you would do it. But, oh, I'm so glad it's over. MOTHER

The Nation's gift to Commander Byrd on Christmas Day was a rear admiral's stripes. President Hoover placed his signature to the bill, passed unanimously by House and Senate, giving the promotion in recognition of distinguished service. Word of his promotion was radioed to Admiral Byrd in Little America. The Nation waited for him and his comrades to come home to receive their honors. Then on New Year's Day came news that the gigantic arms of the ice pack were closing in upon the expedition in the Ross Sea. Immediately the "Eleanor Bolling" started to the rescue. The United States Government appealed to Norway and England, the only nations which had available ships in the antarctic area, for aid if the necessity arose.

The crisis had been reached. Explorers voiced the terror of every adventurer in the polar regions during a thousand years when they asked if the Byrd ships could force their way through the ice pack. They wondered if they would be imprisoned for another long year with diminishing food supply, and if they could subsist on seal, whale, and pemmican and withstand the rigors of the second winter. Was the danger over or had it only begun?

Chapter IV

THE VAST CONTINENT OF ANTARCTICA, AND WHAT IT REVEALS

THE winter of 1930, which found Admiral Byrd and his associates facing the terrors of isolation in Little America, found, also, three other nations in keen rivalry for new possessions in Antarctica. What Byrd had done for the United States, the Riiser-Larsen expedition, Sir Douglas Mawson, and Sir Hubert Wilkins were doing for Norway, Australia, and England: the Riiser-Larsen expedition taking possession of new lands in the name of Norway; Mawson, Anglo-Australian, surveying the uncharted spaces on the other side of the continent from Byrd; and Wilkins, the Englishman, charting the coast of Hearst Land, which he had discovered on his first expedition to the Antarctic the year before.

While the governments of the world disputed each its claim to patches of the great continent, the rivalry of the expeditions ended in the air. On the ground, the men were friends, often naming newly discovered lands in honor of their rivals. Wilkins, the first man to fly in the Antarctic, in the year before Byrd's expedition, and the first man to fly across the top of the world with Eielson, the Canadian, from Alaska to Spitzbergen, named a cape "in honor of my friend, now Admiral Byrd," and still another cape in honor of his fellow countryman, Mawson. Wilkins, too, having flown over "a large area of the Arctic which had never been seen by man and kept the air for two thousand miles," planned to be the first man to fly across

the continent of Antarctica to greet Byrd in Little America following his flight over the south pole. His preparations were interrupted when winter set in against him. It is such men as these, of courage, character, and good sportsmanship, who are giving to the world its knowledge of "what this mysterious section of the earth is like."

Bit by bit their struggles have added to this knowledge. According to Dr. Ludwig Mecking, the famous geographer, it is to Sir James Ross, who discovered Ross Sea and Ross Barrier, that "we principally owe the main elements of our present conception of the Antarctic: the ice-covered land with its terrible storms, the high coastal walls with their mighty glaciers, the great volcanoes with their smoke banners high up in the snow-swirling air, and not least, the ice wall which bears his name."

Figuring and refiguring each precious bit of new data, geographers have arrived at a few hard-won additional conclusions, more concrete than, if not so picturesque as, these main elements. They know that the antarctic desert of ice is the largest desert in the world. They know that the average elevation is 6,000 feet, double that of any other continent in the world. They estimate the thickness of its ice covering at 5,000 feet. Because they know that the eastern and western coasts are covered with ice to a much greater height than those of the south and north, the greater part of the exploration of the Antarctic has been carried on by way of north and south. They know, too, that the Weddell Sea on the north is obstructed with ice for a greater portion of the year than the Ross Sea on the south. Shackleton, Scott, Amundsen, Mawson, and Byrd, all entered the continent by the Ross Sea.

What the scientists do not know and what they are engaged in discovering is the origin and history of this

continent, and its potentialities. Was it in bygone ages a part of the mainland of South America, or even of Asia? Like the lost Atlantis, was it once the seat of a lost civilization? Some scientists have advanced the theory that the earth is cooling, and that once the heat of our planet was so intense that life could exist only at the cooler poles. Others have suggested that the axes of our revolving earth may have shifted in the course of the thousands of years of its existence and that points on the earth's surface which are now its frigid poles may once have been points on the surface much closer to the tropics at the equator. First to pass into the glacial age, was this dead realm of 4,500,000 square miles once a tropical country of rich verdure that lived and died millions of years ago? Does it now possess mineral wealth? Does it secrete resources that may be utilized? Will it be subject to human habitation in times to come?

Today, except for the wingless mosquito, no life exists in the interior. Not only is the region devoid of human and animal life, but it is also practically devoid of plant life. In the Arctic, in the short summer months, grasses and even flowers greet the explorer and furnish food for the musk ox and the reindeer. In the Antarctic, not a single grass nor flowering plant has so far been discovered within the limits of the circle. This is, of course, a condition unique in geography. Only here and there, clinging to the rocks and growing on the hard and sandy soil, are some sixty species of hardy moss and about a hundred varieties of lichens.

In contrast, the sea and its shore are thronging with life. Penguins, petrels, and skua gulls sun on the shores. Multitudes of whales and seals, sea lions, sea tigers, sea elephants, walruses, and sea leopards gambol in the coastal waters; while giant petrels, carrion birds, feast on the

carcasses of whales or seals stranded on the shores. Groups of comic busybodies, the Adélie penguins and their more serious brothers the emperor penguins, waddle importantly about their pursuits. Flocking in uncounted millions, these birds furnish subsistence—and humor—to all explorers. Before a merciful law intervened, there was a penguin-oil refinery on Macquarie Island where 200,000 of these friendly little creatures were slaughtered annually. Now the island has been set aside as a sanctuary and once again its shores resound with their ceaseless cries. It is estimated that it is the home of a million penguins, which breed in an area of about ten acres. There they have set up their rookery, an orderly little village with streets through which they pass constantly on their way to the sea to catch shrimp for their families.

The emperor penguins strut and breed in the depths of the antarctic winter, during the months of constant darkness. They scream and screech along the coast, standing about or tobogganing in unconcerned multitudes, and hatch their chicks upon the ice, tucking the single egg into a warm crease in the lower abdomen and holding it in place with the feet while the mercury hovers "between 80 and 100 degrees below the freezing point."

Ponting of the Scott expedition made a careful study of the habits of the Adélie penguins. They were so named, he said, by the French explorer, Admiral Dumont d'Urville, when he discovered Adélie Land in 1840 and named it after his wife. "No creature has endeared himself to antarctic explorers so much as the Adélie, or black-throated penguin," said Ponting. "There is no memory that those who have penetrated into these polar seas cherish so much as their meetings with these busy, lovable, little people—for one cannot help thinking of the Adélies as fellow creatures.

"Penguins are the real inhabitants of the Southland. The proud, stately emperors with their courtly, polished manners are the upper classes, the aristocrats of the eternal snows; but the Adélies are the multitude, the *bourgeoisie*. It is said that when Anatole France first saw the warm-water penguins, he wept. One wonders what the famous literateur would have done if he had seen the Adélies. He might have wept still more—with laughter."

Unfortunately for the penguins, even the law cannot rid them of the noisy and quarrelsome skua gulls, whose raucous screaming never ceases during the summer months. Shackleton's biologist, Murray, described them as "flying heavily or sitting drowsily on the ice." Scavenger gulls, they prey upon the eggs and chicks of the penguins, sometimes even eating their own children. Their marital relationship, however, inspires a modicum of respect. They lay two eggs only, after which the male and the female take turns brooding over the nest, a mere hollow scooped out of the sandy soil.

While the birds dispute the coast, whales spout, dive, and leap in the frigid waters—whales, whales, whales everywhere, as far as the eye can reach. Byrd rashly patted one of these Biblical Leviathans on the nose with a ski pole. It was Shackleton who, as his eyes fell upon the waters seething with seals and spouting whales, christened it the Bay of Whales, terming it "a veritable playgound for these monsters." Murray observed later, "Hundreds of whales —killers, finners, and humpbacks—were rising and blowing all around." Whales were even more numerous in the antarctic than in the arctic regions until the last decade, when heavy inroads were made upon their numbers by commercial whalers. The industry is principally conducted by Norwegian vessels under British control,

England having "taken possession of the greater part of the antarctic continent, including the main whaling grounds, from which are taken yearly whales to the value of more than a million dollars."

Five varieties of seals were formerly found in the Antarctic in great numbers. Two of them, the sea elephant and the Ross seal, have been practically exterminated by the ruthless warfare of the sealing fleets; while the most common varieties now found, the sea leopard, the crab-eater seal, and the Weddell seal are being rapidly reduced. It is on record that one ship, the "Aurora," in one season carried back over 35,000 pelts of a current value of about $114 a skin, or nearly $4,000,000. Happily the League of Nations has formally taken up the matter of the preservation of sea life in the antarctic area, and an international agreement securing that end is now considered a certainty.

Of what interest is this land of silly penguins and killer whales, of ice and blinding snow, this country of eternal death and desolation? To what end and for what reason, comfortable men have always asked, do men like Byrd and his fellows go to polar regions? The question characterizes the questioner, just as the adventure characterizes the adventurer. Throughout human history, there have been men unwilling to leave unferreted the corners of the earth, while others have sat at home, comfortable, well-fed, content. And those who have sat in comfort have always asked Why?

To the man who has followed camel trains through the Sahara, with its silver sands and its turquoise nights, where he feels that he can reach up and pick the glittering stars out of the canopy of heaven, it has never been difficult to comprehend something of the lure of this great desert of Antarctica with its glistening ice and blinding white snow

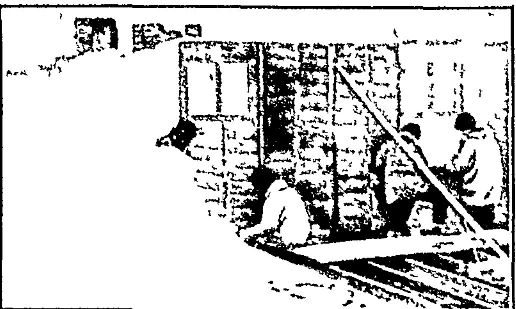
in a land of crystal jewels. Now, sitting in warm, darkened theaters, the least courageous homekeeper may hear the call of the Silent Unknown and feel the fascination of this southland to creatures of more adventurous blood, for the miracles of modern science are bringing the Great White World of Byrd and his fellow explorers out of the desolate night of Antarctica to be unfolded in motion pictures before the eyes of the entire world. Hundreds of millions of people of all nations and races will look upon this still, white land where here and there, like beckoning mirages, cathedral spires of mountains pierce the bleak sky in sublime majesty; where the penguin goes unconcernedly about his business and the Weddell seal basks in the midnight sunshine. Perhaps the boom of the surging waves from the Weddell and the Ross seas will resound in their ears as they watch the huge ice barriers slowly push out into the sea at the rate of about 500 feet a year, masses of them breaking and floating away among other bergs formed by the shelf ice and the freezing of the sea water.

Records such as these, of priceless educational value, will be brought home by the four expeditions to the Antarctic. Hurley, of the Mawson expedition, who was also official photographer for Shackleton, is a master artist with the lens. The imperishable photographic record made by Ashley C. McKinley with a mapping camera especially made and fitted for the Byrd expedition will form one of the expedition's most valuable contributions to science. With one exposure the camera covers an area of 2,800 square miles. Special shields were made to prevent the glare of the polar snows from distorting the light rays that reached films so sensitive that they would reveal details invisible to the human eye. With the camera, McKinley photographed a strip of territory five miles

HIGH POLAR PLATEAU
12,000 FT
TO THE POLE
10,000 FT
FOOD DROPPED HERE
500 FT
MOUNTAIN SLOPES EAST OF GLACIER
SECTION OF LIVS GLACIER
8,000 FT ALTITUDE
DEPOT

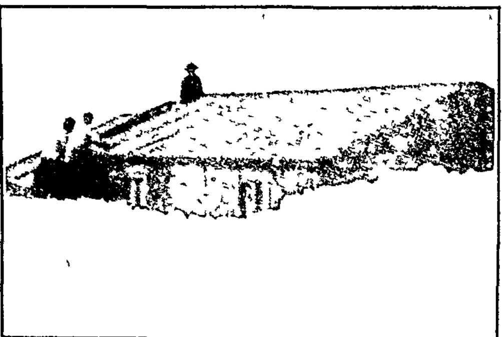
BYRD'S ROUTE TO THE SOUTH POLE THROUGH PASSES IN A 12,000-FOOT MOUNTAIN RANGE

Byrd's airplane, the "Floyd Bennett," was forced to veer from side to side and climb upward over glaciers and ice cliffs. Food was thrown overboard to gain height. This diagram was drawn by experts for the *London Sphere*.



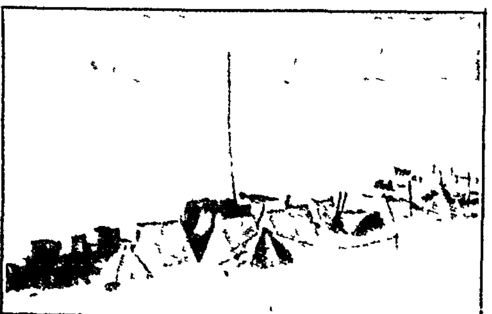
HOMES IN LITTLE AMERICA

Here Byrd's party lived through the long polar night



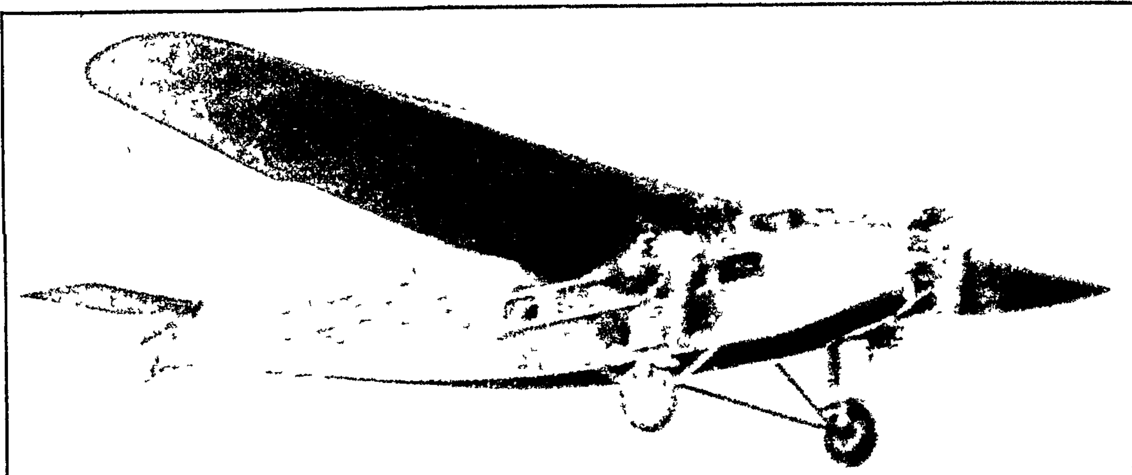
HUGE SNOWDRIFTS

This house was made in America and erected in Antarctica.



LIVING IN TENTS

Camping on the snow before the houses were completed.



© Acme

THE PLANE WHICH CROSSED THE POLE—THE "FLOYD BENNETT"

This trimotored all-metal airplane, built by Edsel Ford, made the first flight over the south pole, November 28, 1929.

© Underwood & Underwood

THE FLAGSHIP OF BYRD'S AIR FLEET

The now historic ship when it was being crated and packed for shipment to the Antarctic for its epoch-making flight. This official photograph shows the workshop at Hampton Roads, Virginia.



© W de World

CAPTAIN ASHLEY McKINLEY, OFFICIAL AERIAL PHOTOGRAPHER AND SURVEYOR

As the huge plane scaled gigantic mountains and gorges, he stood at his camera and made the first aerial photographic record of the south pole



© Wide World

ADMIRAL BYRD'S CHIEF SURVEYOR, JOHN S. O'BRIEN

Assistant to Admiral Byrd on the antarctic expedition.

wide and 1,600 miles long, charting during the trip 1,848,000 square miles, an achievement hitherto unparalleled in the annals of photography.

However, instructive and exciting as these pictures will be, the camera is but one of the mechanical devices by which science has made possible the recording of these comparatively safe journeys to the ends of the earth. While the camera is the eyes of polar exploration today, the radio is the ears and voice. Byrd's expedition kept in instantaneous communication with the world. His messages flashed from Antarctica to New York in a fraction of a second. In return, voices and music "from home" drifted in to Little America as though it were next door. Orchestras from the night life of Broadway broke the silence in the long night. Wilkins, across the far reaches of Antarctica, listened in at the same time. Actors and singers entertained the expedition. Famous artists, pianists, and violinists gave recitals. Banquet speeches did not fail to reach them. As many as two hundred messages reached Commander Byrd in a single night, while in the Far North the Sutton expedition listened to piano solos played by Dr. Sutton's mother in Pittsburgh for her son at the top of the world.

Work done by the sets of the Byrd expedition marks radio's greatest triumph. Forty-five minutes after Byrd's plane left the ground in Little America, the *New York Times* was on the street with a full story of the historic take-off. The dots and dashes rising from the steel antenna of the farthest south radio station in the world found with unerring accuracy the thin copper receiving wire on the *Times* office in the Forty-second Street district of New York, traveling at the rate of 186,000 miles a second the vast distance of 11,000 miles that lay between.

At the *Times* office, in the center of the whirl of activities at the heart of the Western Hemisphere, in the interest of science, two men sat at their posts of duty in constant communication with Little America. They were F. E. Meinholtz and R. J. Iversen. The contribution which, with their help, the great news journal made to the development of the science of communication in the elimination of time and space, is surely one of the remarkable achievements of our times.

At the station in Little America, far distant from the interference of skyscrapers or high-tension wires or even trees, important experiments were made. These experiments included a study to determine the cause of "fading," the most annoying problem of the radio world today; an investigation of the effect of snow on static, of the aurora australis, ground waves, sky waves, direction, radio echoes, and allied problems. Malcolm P. Hansen, chief operator of the Byrd expedition, pointed out in a recent interview the importance of these polar investigations. "In itself," he said, "the behavior of radio waves in these latitudes may seem of little practical value, but when it is realized that a great many of the radio routes in the civilized world on their great circle course pass near either of the earth's poles the importance of these observations to the world's long-distance communication becomes apparent."

The apparatus with which the radio experiments in the air were carried on made use of four independent sources of power, adjusted so that if one failed the others would pick up the work and carry on without interruption. The first generator was hooked into the main drive shaft of the center motor. Another was arranged so that it might be driven by the air stream, a third was connected with a light aluminum gas engine for use should accident force

the party to the ground, and a fourth was so constructed that it could be operated by hand. Two antenna systems which could readily be used from the ground were installed, one of the regular aërial trailing type and the other running from the wing tips to the tail. The transmitter was powered with a fifty-watt tube and was of the self-rectified, self-oscillator type, capable of sending both short and intermediate waves. Duplicate receivers completed the main features of the installation, one for short and the other for intermediate wave reception. Both were of the super-regenerative type which gives great amplification and were built especially for work in the Antarctic, where selectivity is not a factor.

On the flight over the south pole, a locked key on the plane broadcast a continuous whine to five operators, three of whom were at Little America and two on the ship at Dunedin, New Zealand. Any cessation or change in this note would have informed the listeners instantly that something had gone wrong with the plane. But the whine never stopped. Radio demonstrated a complete triumph over the most severe conditions to which it had ever been subjected and the carefully planned schedule was carried out to the last letter.

Radio was not the only modern invention that spelled the difference between life and death for Byrd. As all the world knows, his expedition was equipped with instruments for safety and accuracy which explorers hitherto have never known. For example, explorers up to the present time have spent many anxious hours working over their observations. The fact that this would, of course, be impossible in an airplane moving at the approximate rate of a hundred miles an hour has been the chief argument against explorations by air. For this reason, Donald B.

MacMillan, who had used an airplane for his work in the Arctic, said on his return in 1926 that he was not satisfied that exploration by air was practicable. For Byrd's use in his south polar flight, George Washington Littlehales, Navy scientist and mathematician, made a set of tabular computations which enabled the flyer to determine his exact position at any time by comparing the sextant readings with the printed calculations. With this mathematical table the problem is solved and future explorers in the air will be able to determine exactly what their position is at any given moment.

Another instrument, without which a successful trip would have been far more difficult, if not altogether impossible, was the Bumstead sun compass. In polar regions the ordinary compass is almost useless, owing to the fact that the explorer is so close to the magnetic pole that the needle responds at all times very slowly and sometimes does not respond at all to a change in position. The Bumstead compass was invented by Alfred H. Bumstead, chief cartographer of the National Geographic Society, especially for Byrd's use in flying over the north pole. "Without this instrument," said Byrd, "I do not hesitate to say we could not have reached the pole. It is even doubtful if we could have hit Spitzbergen on our return."

As a matter of fact, three compasses were used on the flight: the sun compass, the earth induction compass, and the aërial magnetic compass. The aërial magnetic compass is only of value until high wind or disturbed magnetic conditions interfere with the movement of its dial. The earth induction compass became famous when Colonel Charles Lindbergh used it on his historic transatlantic flight. It makes use of electric current generated in the plane itself and can be adjusted to bear upon the true

north and south, but as the vicinity of the magnetic poles is reached it loses its sensitivity and becomes practically useless for further navigation. For the successful use of the sun compass, it is necessary to have but two things: the sun itself, and the time of day. The principle upon which it is constructed is a reversal, more or less, of the principle of the old sundial. The shadow thrown by the sun on the face of the instrument, which is in the form of a twenty-four-hour clock, indicates the exact direction of the flight.

Commander Byrd, himself, perfected a third instrument which was indispensable for his flight, a new kind of navigating sextant called the bubble sextant. He experimented with this instrument when he first began flying out of sight of land at the beginning of his career as a Navy flyer. It uses a bubble level in place of the artificial sea horizon used on the standard sextant.

With these instruments, Byrd and his scientists have flown over the south pole, discovered and charted Marie Byrd Land, the Rockefeller Range, a new island, fourteen mountain peaks, and large territories near the south pole. Three major problems now confront the scientists at home. To the lot of the geologists falls the determination as to whether Antarctica is one continent or two. Darwin the scientist propounded a theory from his observations of the tide that underneath the ice ran a continuation of the Weddell Sea, which, joining the Ross Sea, completely bisected the continent. The discovery of high land or mountain ranges in the interior would completely disprove, of course, this Darwinian theory and establish Antarctica as a single continent.

To the geologists, too, falls the problem of whether this land mass forms a southern extension of the Old World

or the New. Lawrence Gould, the geologist, collected specimens of the mountain rocks of Antarctica, the thorough examination of which should reveal much not only about the origin of Antarctica but about the origins of the earth itself.

The third major problem deals with the determination of the effects of wind movements and their causes. Amundsen found, in direct contrast to experience in other portions of the world, that in the South high winds came as the barometer rose and calm winds as it fell. This contradicts all known laws of atmospheric pressure and authentic data is needed for an explanation of the phenomenon. Meteorologists with the Byrd expedition have been studying the question and may later have much light to throw upon it.

Beauty, danger, mystery, potential wealth and power —this is the meaning of Antarctica today. For a thousand years stillness and death have lured explorers; geographical and geological mysteries have fascinated scientists; and possible mineral and chemical resources have intrigued the nations. Who knows but that tomorrow may show forces which will revolutionize human living itself?

Chapter V

THE THOUSAND-YEAR CONQUEST AND HOW IT BEGAN

BYRD at both ends of the earth followed the trail that had been blazed by thousands of men. The ice pack from which he escaped to New Zealand, and thence back to America, has challenged human courage and ingenuity for more than ten centuries.

His successful flights in the Arctic and the Antarctic have been the culmination of a thousand years of struggle and thought. For ten centuries, man has sacrificed himself in the arctic wastes. To what Byrd accomplished in hours others have devoted years without success. Where he came home in safety, thousands have died in unbelievable terrors. His achievement, thrilling as it is as a triumph of human intelligence and science, is even more thrilling against the background of the centuries.

It was to the more accessible North that men first turned their attention, partly by chance and partly in an effort to find an open passage to the wealth of the Indies. While the Arctic, like the Antarctic, is a vast region of 4,500,000 square miles of ice, it differs materially in its barriers against invasion. The Antarctic is a continent; the Arctic is an ice-bound sea upon which continents and islands converge from the four points of the compass. Well within the arctic circle and stretching up into the Arctic Ocean lies the Danish island of Greenland. From the continent of North America, Canada and Alaska extend into the circle. Siberia in its desolation spreads up from

Asia, and at the uppermost reaches of Europe the Norwegian possession, Spitzbergen, stands as a fortress against the icy seas.

The North, too, unlike the South, is the home of a sturdy race of people, the Eskimos, who have a Far North settlement at Etah, in Greenland. Again unlike the South, the North during certain seasons is a land of comparative plenty, the home of birds and sleek animals, of fish and green plants. Along the trails to its tragic wastes, great flocks of birds, with the return of spring, soar above the wilds, seeking the abundant fish in the rivers and lakes. Lichens and moss appear almost overnight. Eagles swoop down upon their prey. Hawks, gulls, cranes, eider ducks, auks, terns, ptarmigans, and snow owls by the hundreds of thousands fill the air with their wild, shrill cries. Herds of deer leap over the crevasses; mighty polar bears come out of their long hibernation; walruses and seals sun themselves on the melting floes; foxes roam the barrens seeking the little lemmings which scuttle over the snow. Musk oxen and reindeer, now fast disappearing, scent the approach of man.

It is not surprising that, coming upon this smiling land of open seas and abundant life, brave mariners seeking a new route to the East little dreamed of the terrible white silence which lay over the border lines of human habitation. It is not surprising that, foot by foot the surging seas and swarming life of the short-lived summer drew them on into the deadly wastes of winter and that the magic of the unknown led them ever farther north—north where there was no rustling of the wind in the trees, for there were no trees; no lapping of the water on the shore, for shore and sea alike were one monotonous and unending empire of ice—north where over the barrenness sound traveled for



© *Wide World*

RUSSELL OWEN

Brilliant annalist whose records were radioed from Little America to the *New York Times* and relayed to associated newspapers throughout the country with Byrd's own official reports.



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DR. HALDOR BARNES

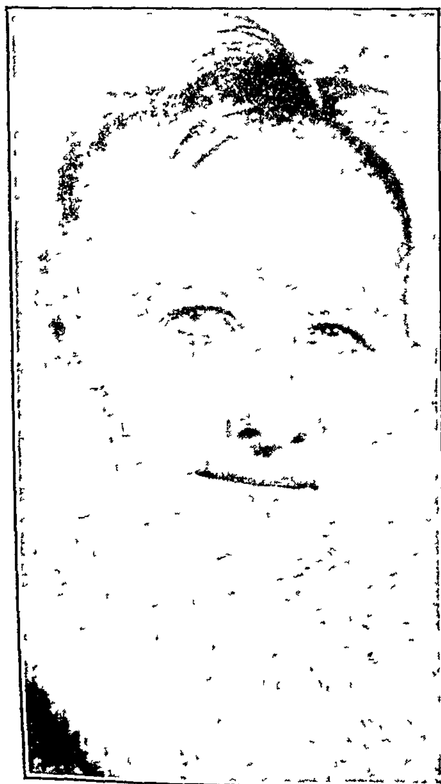
This physician's "job" was maintaining the health of the Byrd community in Little America.



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DR. FRANCIS D. COLEMAN

Surgeon from Johns Hopkins University who aided in cases of freezing and accident



© Wide World

METEOROLOGIST HAYNES

"Cyclone" William C Haynes conducted researches in the home of the blizzard with the Byrd expedition.



© Wide World

METEOROLOGIST HARRISON

H T. Harrison's mission was to determine the effect of Antarctic conditions on our own weather

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BYRD'S LINK WITH AMERICA—OFFICIAL RADIO CHIEF F E MEINHOLTZ

Byrd radio station of the *New York Times* Autographed by Mr Meinholtz and his assistant, R J Iversen (right).



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RADIO IN LITTLE AMERICA

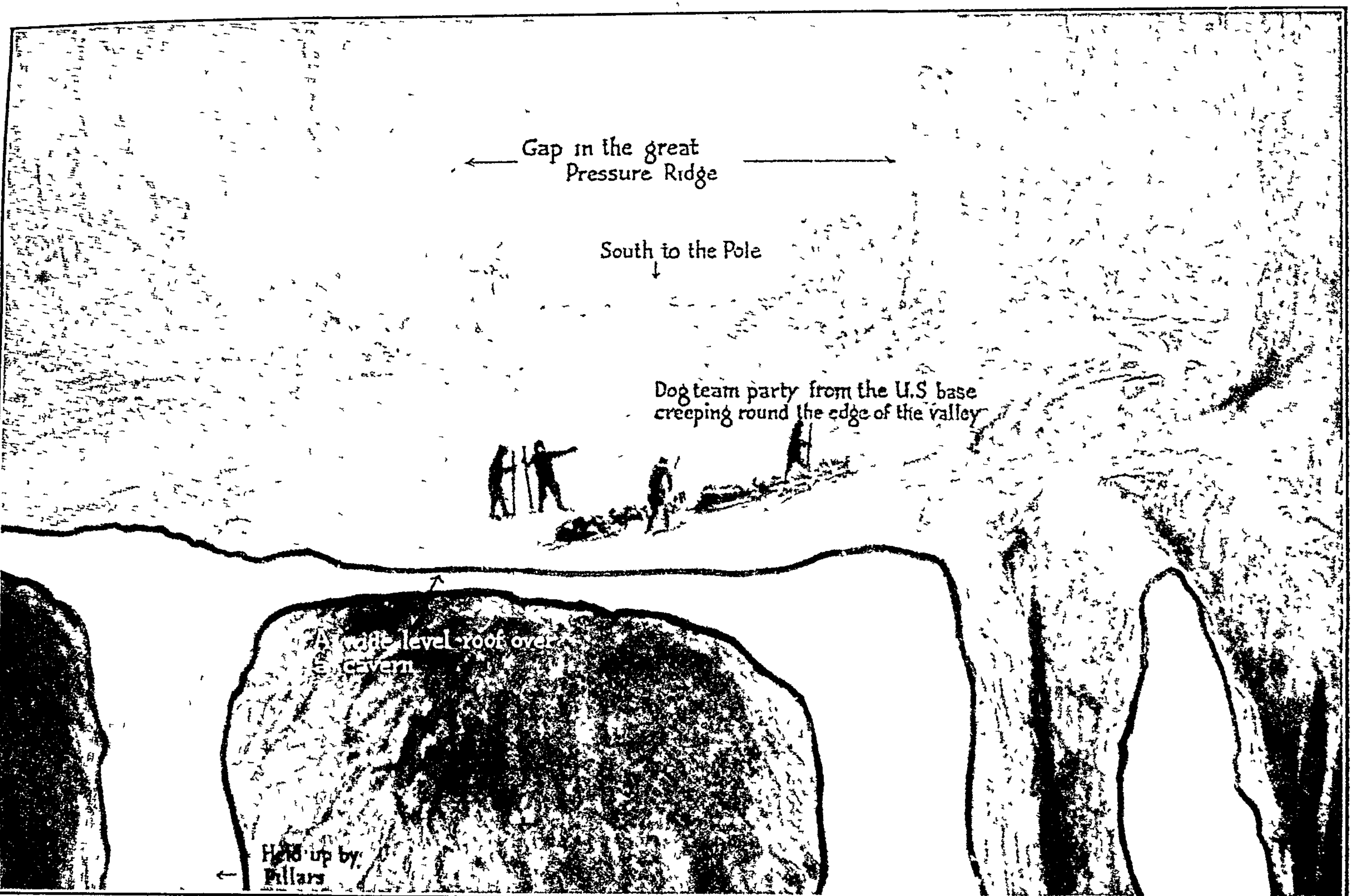
Lieutenant Malcolm Hanson, who flashed messages to New York



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BOY SCOUT OF EXPEDITION

Paul A Siple, selected to go with Byrd to represent the Boy Scouts of America



BYRD'S PARTY ESCAPES SINKING INTO A BOTTOMLESS CAVERN

Diagram of a frightful cavern over which Byrd's party had to pass Each step rang hollow They could hear a booming beneath them and feel the snow sinking beneath their feet. The roof of snow is upheld by pillars of ice From a diagram recorded in the *London Sphere*.

miles in the cold, still air, dying in cadences that left the enveloping silence more profound; where sometimes the barking of a roving fox was heard in the darkness, but more often, only the horrible grinding of ice or a terrific splintering crash as huge bergs cracked and toppled down in ruin.

It was a brave and daring Greek, Pytheas of Massilia (Marseilles), who first attempted to conquer this formidable region. Three hundred twenty-five years before Christ, Pytheas, in the frail vessel of his day, careless of superstitious reports of a Sea of Darkness, rumors of frightful monsters, of dragons and sea serpents, and of foaming whirlpools upon the edge of the world, set out on a voyage to the North. Returning in safety, he amused Athens with tales of a far-off land washed by ice-strewn seas. To this land (probably Iceland), he had given the name of Thule. The men of his day, however, spoke incredulously of his discovery and counted it of little moment. In a few generations it had been entirely forgotten.

Eleven hundred fifty years later, A.D. 825, Dicuil, the Irish monk, poring over some old Latin manuscripts, came upon mention of this land of Thule. Himself a giant of tremendous physical vitality, he was fired by religious enthusiasm to transport a party of monks to the Far North for missionary purposes. "There is no night in this strange land during the summer months," his missionaries reported upon their return, "and a great and perpetual darkness settles over everything as the cold winter months come on." With these scant facts, the story of the North is again lost in obscurity for another half century.

Then came the vikings, whose tales the sagas of the Norsemen tell. A mighty race from the fiords of Norway, they sailed the seas as the first thousand years after Christ

passed by. They were giants. They moved over raging waters in boats with fantastic prows. They defied the tempest; they laughed at the storm. The sea was the source of their food supply, the scene of their pleasures, the field of their battles, the grave of their bodies. From their shores in the northlands, many a funeral ship sailed out into the darkness, its mighty lord cold in death, his weapons around him, on one last voyage into the far unknown.

In the year 878, these adventurers landed in England and were feasted by the great King Alfred. To him they gave written directions for reaching Greenland which are still extant, the oldest written work on arctic geography. King Alfred, his imagination inflamed, outfitted an expedition to visit the strange land which the vikings had described to him. Under Ohthere and Wulfstan, his ships sailed far up to the North Cape, 73° N., and came back with thrilling tales of the land of the Lapps.

Pytheas sailed home; Dicuil sailed home; Ohthere and Wulfstan came back to England. In the year 986 Eric the Red, viking and outlaw, landed in Greenland, far above the arctic circle, to establish the first settlements at Eystrabygd and Vestrabygd. No wilder tale appears upon the pages of history than the saga of his bloodshed and adventure. Twenty-five shiploads of vikings sailed the northern seas. With their terrible swords in their hands, their massive shields upon one arm and their bold and cruel women folk on the other, they invaded the coasts of Greenland. Eleven shiploads perished on the voyage. Fourteen made the shore, to terrify and subdue the natives and to establish their savage customs and their savage gods.

While Leif Ericson, son of the mighty Eric, pushed southward to more pleasant lands, even as far as the present state of Rhode Island, other fearless vikings pushed

their turbulent way farther northward. Long before civilized men had traveled north with improved ships and methods of navigation, these natural seamen, trusting to their instincts alone, with neither compass nor sextant, had sailed the far northern seas of Barrow Strait and reached lat. 75° 46′ N., within less than a thousand miles of the polar apex of the world. As far north as 73° they built their cairns, one of which is inset with a mystic runic stone of their mythology which probably dates from the fourteenth century.

At the beginning of the fourteenth century, the black death fell upon Norway. At the same time the natives of Greenland rose in rebellion against their masters, and the vikings, far outnumbered, were in sore distress. They looked to Norway for help but, cursed with the scourge, their country had forgotten and abandoned them. Left to their fate, they perished in unequal battle, and for nearly two hundred years darkness again enveloped the North.

A Sea of Darkness held Europe in thrall. Men thought the world was flat, and mariners, with only the sun and the polestar for guides, crept timidly along the coasts, fearful of currents that might bear them out into the unknown or sweep them into the maelstrom that boiled fiercely over the edge of the world and carried the incautious sailor down to destruction. "Monsters waited in these seas" to devour missing ships. Mermaids enticed poor mariners to watery doom in their cold embraces. Enormous sea serpents crushed venturesome vessels in their coils. Great leviathans, larger than ships of war, swallowed in one gulp ship, crew, and all. In the land of the cannibals the sea was boiling hot. In the land of the Eskimos, the mountains were of ice. There was even a land where ships sailed upside down.

Gradually by the side of these myths grew that of the magical land of Cathay, with its fabulous riches, its palaces of precious gems, and its great white elephants with trappings of gold and silver. Spain and Portugal, controlling the routes to the Indies, first through the Mediterranean and the Red Sea, and later around the Horn of Africa and through the South American Strait of Magellan, were daily gaining new riches from fleets of merchant ships and caravels. The imagination of bold explorers pictured pearls and diamonds and rare precious stones lying unclaimed on the beaches of Cathay. Sands of pure gold lined the inland rivers. Birds whose glorious plumage brought fabulous prices in the markets of Paris and London sang from every tree. The trees themselves were fruitful with valuable spices and medicines. Silk and ivory could be bought from the natives for a few knives and beads. Cinnabar, dyewoods, teas, and slaves—everything that was worth most in the markets of the European world—could be had for little or nothing in the marvelous islands of the Indies.

Sailing was now less hazardous. The mariner's compass had come into general use at the beginning of the fourteenth century, and ships were no longer solely dependent upon the sun and the polestar. England, Holland, and France sought a new route to Cathay, shorter than that controlled by Spain and Portugal and less beset by pirates, those "thieves of land and water, the land rats and the water rats." A single voyage might build a fortune and untold riches would be the portion of him who should discover a northwest passage or a northeast passage to the golden sands of Ind.

In 1492, Columbus, seeking a direct route west to the Spice Islands of the Indies, sailed the unknown seas to America and returned alive. Nobles and commoners,

"younger sons," adventurers, seasoned seamen, even boys, entered the race for a new passage. England, looking upon America as El Dorado, and stirred to envy, undertook the series of voyages which eventually built her empire and made her fame as a maritime nation. Hundreds of ships were fitted out by the London merchants and sent on the Great Adventure, the majority to be wrecked, lost at sea, or robbed. However, since one success to twenty failures was a profitable percentage, everyone, from the ruler to the humblest shopkeeper, was eager to invest.

In 1497, Henry VII, spurred by the "gold rush," sent the Cabots, John and his son Sebastian, to reach India "by a shorter route" and take possession of its wealth. Sailing westward from Bristol, they came upon land between 45° and 50° N. and, calling it Prima Terra Vesta (now Nova Scotia and Newfoundland), they sailed home again, where the king rewarded them with a grant of about fifty dollars.

John Cabot died, but his son, Sebastian, fitting out a fleet of five vessels, took with him more than a hundred emigrants and set sail to colonize the "new found land." He reached 67° N., probably passing for the first time into the waters of what was later to be known as Hudson Bay. A few natives were brought back to England, where they excited much comment and great admiration, but the emigrants all perished of cold and starvation. During his voyage, Cabot explored more than eighteen hundred miles of the coast of North America, and for this his king awarded him the office of grand pilot of England. He received, too, a lifetime appointment to the governorship of the Muscovy Company, a group of English merchants formed in the interest of new explorations and, especially, in the "Discovery of a Northeast Route to the Indies."

England was not alone in her greed and daring. In 1500, Gaspar Cortereal under the flag of Portugal sailed north to find a new passage to the Indies. Ice and storms drove him back before he had penetrated farther than 60° N., but he touched on the coast of Greenland and brought home about sixty of the native Eskimos to be sold as slaves in the marts of Lisbon.

In 1502, with two ships he set sail again to seek new riches. Storms separated the vessels in Hudson Strait, and Cortereal and his hardy crew were never heard from again. His brother, Miguel, fitted out three ships and sailed at once in search of him. His ships, in turn, were separated by storms and floating ice. Two returned to Portugal, the other sailed on into the arctic silence and Miguel and his crew were never seen again. A third brother, Vasqueanes, tried for many years to raise funds for another relief expedition but failed.

In spite of failures and death, exploration had seized the imagination of the nations. Even before Columbus sailed westward, Dias for Portugal had rounded the Cape of Good Hope in 1486. After Columbus, Vasco da Gama for Spain reached India by sea, around the Horn to "Calicut." In 1513 Ponce de Leon, seeking the fountain of perpetual youth, carried the flag of Spain into Florida, and in the same year Balboa discovered the Pacific Ocean. In 1519 Cortes started upon his conquest of Mexico and the fleet of Magellan began its circumnavigation of the globe, sailing far down into the antarctic circle. Former fears were forgotten. Sea serpents and mermaids no longer haunted the dreams of sailors. A restless world pursued phantom passages to wealth.

Chapter VI

THE SEARCH FOR THE TOP OF THE WORLD

THE first attempt actually to sail to the north pole was made by sailors under patents granted by Henry VIII in 1527. There were, as Hakluyt the historian records, "two faire ships, well manned and victualled, having in them divers cunning men to seek strange places." Other than the fact, however, that one of these ships was named the "Dominus Vobiscum" and that the other never returned from the venturesome voyage, having been cast away with all of its crew in a dangerous gulf between Newfoundland and Greenland, all records of this expedition have been lost in the mist of ages.

It was twenty-five years before another attempt was made to enter the Arctic. Then, in 1553, under the command of Sir Hugh Willoughby, three brave ships put forth from Ratcliffe harbor in England in search, this time, of a northeast passage to the Orient. Old crones uttered dire predictions of an unhappy fate. Maidens dissolved in tears as they waved last good-bys to their sailor sweethearts. As the ships sailed past Greenwich, the summer residence of King Edward VI, the mullioned windows flew open and disclosed the heads of beautiful ladies in quaint headdresses, their slender hands waving lace handkerchiefs to the departing lord and his men. Courtiers burst from the doors and rushed to the beach, joining the throngs of shopkeepers, laborers, and peasants assembled to gaze with open mouths upon these men who were to sail forth into the darkness of the unknown sea. On board, a

brave cheer rang from the oaken decks, where all were straining their eyes for a last glimpse of England's "faire and pleasaunt land."

Northward they sailed! Smaller and smaller they became, until at last only the flag of England, flying from the masthead of the largest ship, was visible to the straining eyes on shore. Then that, too, disappeared below the horizon. So passed from sight the "Bona Esperanza," the "Edward Bonaventura," and the "Bona Confidentia."

A storm arose and the ships were parted. The "Bona Esperanza" and the "Bona Confidentia," under Sir Hugh Willoughby and Cornelius Derfouth, sailed on into the icy seas. Many weeks later the cry came from the masthead, "Land ho!" Every heart beat faster; every eye grew bright as the adventurers gazed for the first time on the coasts of what is now known as the island of Novaya Zemlya in latitude 75° N. Only the vikings had sailed 46′ farther north. The year being far spent, Sir Hugh started upon his triumphant return.

But for the men of the "Bona Confidentia" and the "Bona Esperanza" there was no return. Arctic blizzards smote them; hailstorms beat without mercy upon their half-frozen crews struggling with ice-sheathed rigging; fog and snow encompassed them. Sun, moon, and stars were obscured for days at a time and no observations were possible. On they struggled until, seeking harbor in the mouth of the Arzina River, they dropped their anchor at last. Months later, Russian fisherman found them there, lying frozen in the cabins of their battered ships. All had perished! But many another good ship would lie crushed, many another crew lie frozen as, point by point, the way was won into the heart of the frigid North.



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THE HOME OF THE BLIZZARD

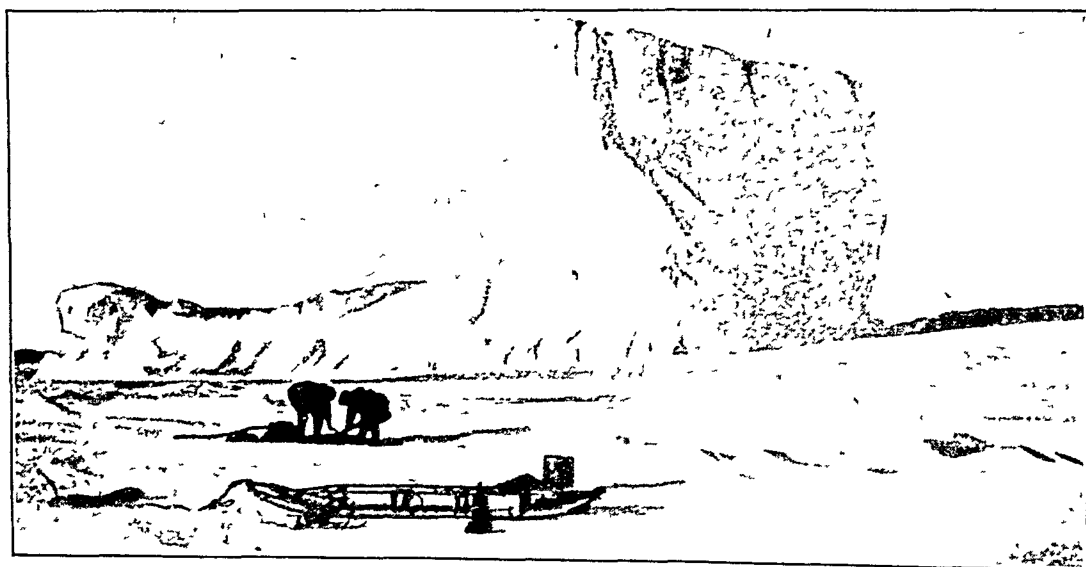
Wind-swept peaks of the Antarctic over which Byrd flew on his way to the Great Goal



© *Acme*

SCIENTISTS ON THE ANTARCTIC TRAILS

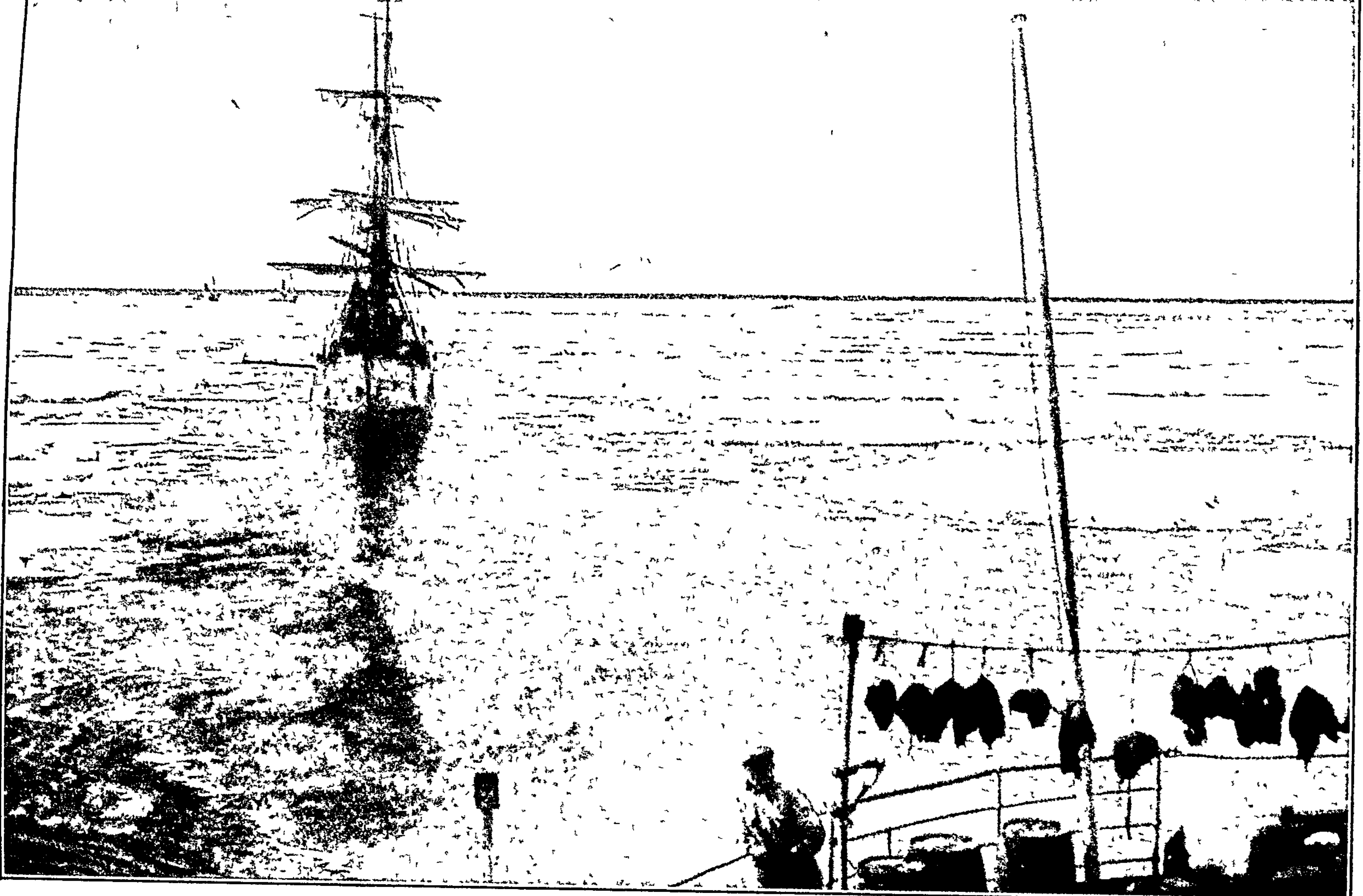
In the teeth of bitter gales, they dared every danger to add to man's knowledge



© *Acme*

MONSTROUS MASSES OF ICE

Byrd flew 1,600 miles, over vast gorges, mountain peaks, plateaus, and great glaciers



© Pacific & Atlantic

BYRD'S SHIPS IN THE SOUTH POLAR SEAS

© Underwood & Underwood

HUSKY DOGS FROM THE FAR NORTH THAT WENT TO LITTLE AMERICA
Dr. Buckingham (center), who had charge of the sledge dogs



© Underwood & Underwood

BYRD'S MASCOT, "IGOE"
He flew over the north and the south poles



© Underwood & Underwood

THE MASCOT PALS
"Virginia" the cat and "Samson" the dog.



© *Wide World*

FLOYD BENNETT, IN MEMORY OF WHOM BYRD'S PLANE WAS NAMED

He piloted Byrd on his flight over the north pole, May 9, 1926, and then gave his life to rescue the "Bremen" on its first westward voyage across the Atlantic

One lone ship came struggling home, the "Bonaventura" under Master Richard Chancelor, who had found his way to the harbor of what is now Archangel and traveled overland to the court of Moscow, where Ivan the Terrible reigned. But Chancelor, too, was fated to death. In England, bloody Queen Mary, fitting out a fleet of three ships, sent him back by the arctic route to negotiate a treaty of commerce with the czar. Accomplishing the outward journey in safety and bringing with him a Russian ambassador bearing the desired treaty, Chancelor sailed for home. Off the coast of Norway, two vessels were lost with all on board. Chancelor's own ship was forced into the Bay of Pitsligo off Scotland and wrecked. The small boat in which he and the Russian put off was swamped by the storm. His companion managed to reach the shore but Chancelor, who had twice survived the dangers of the arctic seas, drowned within sight of the shores of his native land.

Mary sent out no more expeditions, but Elizabeth brought to the throne a passion for high adventure on land and sea. Having cleared the stage of her rival by imprisoning and then beheading the Queen of Scots, she devoted her abounding energies to the development of her kingdom. Gerhard Mercator, the Flemish geographer, had published the first Mercator projection of the world with its longitude and latitude. In the light of this new scientific knowledge, Martin Frobisher, navigator, set out for the Arctic.

An influential merchant, one Michael Lok, supplied Frobisher with money for two ships, the "Gabriel" and the "Michael" and a ten-ton pinnace. The pinnace was lost sight of the first day out. One ship ran into impassable barriers of ice and returned to England. With the other, the gallant Frobisher forced his way on into

the strait which now bears his name. On its shores, to which he gave the name "Meta Incognita," he discovered quantities of glittering ore and sailed for home with samples of it.

Excitement in London was intense. The "Gold Craze" swept the country. The Northwest Passage was all but forgotten in the confusion of manning a new expedition to sail again to "Meta Incognita," where gold lay on the ground and "might be had merely for picking it up." Good Queen Bess, patron saint of explorers, not even so much as suspected that the shining stuff might be iron pyrites, "fool's gold." She was "thrilled by the discovery," and, heaping honors upon Frobisher, issued instructions that "if it be possible you shall have some persons to winter in the strait, observing the nature of the air and the state of the country and what time of year the strait is most free from ice and all things necessary, so well may be."

The deluded explorer sailed with three ships on his second expedition and brought back about two hundred tons of the golden-colored ore. He was king of all he surveyed and untold wealth lay within his grasp. Filled with the most extravagant hopes a grand fleet of fifteen vessels left England in 1578 to found a colony in this marvelous land. It was a bad year for digging gold in the Arctic. From the very beginning of the voyage, the fleet encountered nothing but storms. At the entrance to the strait, it fell in with heavy fogs and was surrounded by fields of massive icebergs. The largest and proudest ship was crushed in the floes, and the others, battered and crippled, were forced to turn homeward without attempting a landing.

The queen was furious. English smelters had found, too late, that the golden ore was valueless. Bitter

disappointment brewed among those who had backed the fleet. Frobisher, humiliated, never again sailed northward. Leaving the country with the fleet of Sir Francis Drake, he sought to retrieve his fortunes in the West Indies and was killed while leading an attack on a French fort.

Hope of the Northeast Passage revived. In 1580 two vessels under Arthur Pet and Charles Jackman sailed north once again. Jackman, with his ship and all of his men, was lost off the Norwegian coast, but Pet discovered a new strait leading into the Kara Sea and returned home in safety. Immediately, Queen Elizabeth, whose mind did not dwell on failure, fitted out five ships and sent a favorite of her court, Sir Humphrey Gilbert, north to try his fortune. Sir Humphrey sailed for the Northwest Passage. At the outset of the voyage, smallpox broke out on board one of the ships and it was forced to return. Of the remaining four, months later the "Golden Hinde" limped home alone.

The ships had landed safely in the harbor of St. John's in Newfoundland and had taken possession of the land in the name of the queen. There, too, the fleet had held a celebration to commemorate the discovery of a mine of pure silver. Sickness had, however, broken out among the men and so many of them were helpless that Sir Humphrey had decided to send them home on the "Swallow." The unfortunate men had sailed for home with thanksgiving, only to perish when the "Swallow" was lost at sea with all on board. Sir Humphrey himself, oblivious of the fate of his men, had embarked on the "Squirrel" and, accompanied by the "Golden Hinde" and the "Delight," had sailed for England with the good tidings of his discoveries. In the passage the "Delight" had been wrecked on a shoal and the captain and more than a hundred men drowned. The "Squirrel," a small ship of only

ten tons, greatly overburdened, had suddenly foundered and every man on board had perished. These were the tidings of the "Golden Hinde." The gloom which settled over England was raised only by the news that Sir Walter Raleigh had established on Roanoke Island, off the coast of Carolina, the first English colony in the Western Hemisphere.

Soon once more the search for a passage went on. Between 1585 and 1587, John Davis made three voyages to the Arctic in search of a northwest passage. Discovering Cumberland Strait and Davis Strait and exploring portions of the coast of Greenland, he reached 72° N., but his findings brought no return to the London merchants who had financed him, and funds could not be raised for another voyage. Years later, after five voyages to the East Indies, the brave old mariner was killed at Bintang, near Sumatra. His efforts in the Arctic, had, however, opened a route to Baffin Bay and the Polar Sea.

Holland, having succeeded in freeing herself from the rule of Spain, was beginning to lay the foundations of her maritime commerce. Since the routes to India were closely guarded by Portugal and Spain, the Dutch, like the English, turned their attention to the North. Merchants fitted out an expedition of four vessels which sailed north in 1594, two of them under the command of Willem Barentz. Entering the Kara Sea and rounding a promontory, Barentz and his men saw unbroken water stretching away as far as the eye could see. According to their maps, the way lay open before them to the "lands of their desire." Unfortunately, they did not know that the maps were erroneous. There was great rejoicing, and returning to Holland, the men announced the discovery the long-sought Northeast Passage.

Credulous merchants immediately fitted out a fleet of seven ships "laden with merchandise for the Indian markets." It sailed at once to the "newly discovered passage," which they called Vaigach (Windhole) Strait. Not dreaming that the arctic summer would not wait upon the hopes of Holland, they discovered in sudden surprise that the way was blocked with ice. The fleet found it impossible to force a passage and returned home with all its merchandise.

The chronicler of the voyage, Gerrit De Veer, has left a graphic account of one ghastly incident:

"Some of our men went on shore, upon the firme land to seek for stones, which are a kind of diamond: and, while they were seeking the stones, two of our men lying together in one place, a great leane white beare came suddenly stealing out and caught one of them fast by the necke; who, not knowing what it was that tooke him by the necke, cryed out and sayd, 'Who is it that pulls mee so by the necke?' Wherewith the other, that lay not farre from him, lifted up his head to see who it was; and, perceiving it to be a monstrous beare, cryd out and sayd, 'Oh mate! it is a beare,' and therewith presently rose up and ranne away.

"The beare at first falling upon the man bit his head in sunder, and suckd out his blood; wherewith the rest of the men that were on the land, being about twentie in number, ranne presently thither, either to save the man, or else to drive the beare from the body; and, having charged their pieces and bent their pikes, set upon her, that still was devouring the man, but, perceiving them to come towards her, she fiercely and cruelly ranne at them, and got another of them out from the companie, which she tore in pieces, wherewith all the rest ranne away.

"We perceiving, out of our ship and pinasse, that our men ranne to the sea-side to save themselves, with all speed entered into our boates, and rowed as fast as could to the shore to relieve our men. The purser levelled his piece and shot her into the head between the eyes, and yet she held the man still fast by the necke; at last William Geysen went to them, and with all his might strooke the beare upon the snout with his piece, at which time the beare fell to the ground, making a great noyse, and he leaping upon her cut her throat."

The sensible Dutch, while disappointed at the outcome of their venture, neither turned on Barentz nor gave up hope of yet reaching the East by the North. In 1596, with two ships, Barentz again struck out for the Northeast Passage. One of the ships returned home with news of the discovery of Bear Island and Spitzbergen. The bold Barentz sailed on to the most northern point of Novaya Zemlya and set up a farthest north record for his country of 79° 42′ N. But tragedy lay in wait for him, for as his ship swung at anchor close to land the ice pack closed behind it, cutting off all escape. Gradually the ice caught the ship in its terrible pressure, lifting it from the water high into the air. The crew, hopeless of escape, built a house from driftwood and prepared to spend the bitter winter months.

Their suffering was heart-rending. Ice formed two inches thick on the walls of the hut and in their very bunks. The driftwood fire burned their stockings before it warmed their feet and, as they stood before it, their backs were covered with white frost. De Veer, their historian, wrote: "We looked pitifully, one upon the other, being in great fear that if the extremity of the cold grew to be more and more, we should all die there of cold, for that what fire soever we made would not warm us."

The long night settled upon them. They had no light save that of the wood fire, the smoke of which almost suffocated them. About them they heard the groaning of the ice "like the bursting asunder of mountains and the dashing of them to atoms." Bears and foxes ran over their heads, "yet though their provisions were running out none could be caught by their utmost efforts." Several of the men sickened under their suffering. One of them died and was buried under seven feet of snow, no tools being strong enough to break the frozen earth.

Ten dark and weary months passed. By the light of the returning sun, the men discovered that their ship had been crushed in the ice jam and that their only hope of life lay in two small boats. Twelve only of them had survived the terrible winter. With heroic efforts they made ready the boats and put to sea. Three more died. Their beloved commander Barentz became too ill for service. Wet, cold, hungry, beaten by the waves and beset by raging wind, they struggled on. Another man died. Barentz examined his charts, gave sailing directions with his last breath, and succumbed. Dying as he had lived, with resolute courage, his parting words were for the safety of his men. They mourned him as one "in whom they reposed themselves, next under God."

Grief-stricken, desperate, but clinging stubbornly to life, the men sailed on. Their small boats, storm-tossed in the gales, rose on the surge of the mountainous waves only to be struck down into the chasms of the raging sea. In that extremity, after 1,183 weary miles, a rescue ship picked up the living. Six men of all the crew survived to be taken home.

CHAPTER VII

BATTLING AGAINST THE BARRIERS OF THE NORTH

THE triumphs of Holland through Barentz stirred the sleeping sense of rivalry in England. Engrossed in affairs at home and discouraged by failure to find a passage through the Arctic, England had neglected to follow up the discoveries of John Davis for nearly twenty years. Now, in 1602, the fight was resumed when Waymouth was sent into the Arctic. His failure to accomplish his mission did not check the awakened enthusiasm and, with the accession to the throne of James I, son of the beheaded Mary Queen of Scots, England entered again upon an era of exploration, the first ten years of which, but for an error in judgment, might have ended in the discovery of the long-sought passage.

Of the hundreds, perhaps thousands, who went north between 1606 and 1616, three men, John Knight, Henry Hudson, and William Baffin, left lasting names—the first through their dramatic and mysterious deaths, the last one, through his accomplishment. John Knight was a mariner of King James's day who was especially noted for his personal courage and for his skill and intrepidity as a navigator. In 1606, he was sent with one vessel to redeem the failure of the past. Reaching the coast of Labrador, he encountered weather far worse than any he had ever before experienced as a sailor. His ship was soon a mass of ice. Great bergs blocked him on all sides as the currents forced him toward the inhospitable land. Weary with



ERIC THE RED DISCOVERED GREENLAND—A D. 982

He settled Iceland and sailed the seas beyond the arctic circle Scandinavian records claim that Leif Ericson, the Norseman, discovered America about A D 1000

COLUMBUS ON THE DISCOVERY OF AMERICA—1492

His fleet fought the Atlantic storms for 45 days. This journey today (1930) is made by fastest steamships in 4 days. Byrd in the air crossed the Atlantic in 18 hours and 55 minutes (1927).





CABOT ON HIS DISCOVERY OF CANADA—1497

An ancient print showing Cabot's ships sailing through the icebergs in the Arctic

the unequal battle, he anchored his damaged craft, and, with his mate and three of his men, rowed across an inlet to seek a better anchorage. Gaining land, the five climbed to the top of a small hill and, turning, waved "all's well" to their messmates. They did not return that day, nor the next. The following night, the eight who were left of the original crew were attacked by a large body of hostile natives. The explorers beat them off with musket fire, and, fearing another attack by a larger force, hastily put to sea in spite of the fact that their battered and leaky vessel was without a rudder. By great good fortune, they drifted to the shores of Newfoundland. Knight and the men who disappeared with him over the hill were never seen again. Discoveries later revealed that they had been murdered in cold blood by the natives.

Henry Hudson was an Englishman, a picturesque character who sailed alternately under the flags of Holland and England, according to the "purse." He proposed to drive through the Arctic and sail on to the Indies. Sailing first for the English in 1607, he broke the world record for going the farthest north by reaching 80° 23′ N. before winter turned him back. Satisfied with this trip, England again sent him out in 1608, but he was beaten back by the ice. Having taken the farthest north honors from Holland, she was unwilling to risk a third trial.

Had England risked the third trip, she might have claimed by right of discovery what she later took by right of arms. Hudson, lacking support in England, turned to Dutch bankers and sailed for the North under the flag of Holland. He was driven off his course to the south and in his wanderings made quite by accident a discovery far greater than anyone of his day had dreamed. He discovered the Hudson River and the island of Manhattan, upon

which was to grow in centuries to come the greatest metropolis of the Western Hemisphere. "A failure," his voyage was called by the bankers in Holland.

The naïve Hudson was undisturbed. In his log book he had made this entry:

"This morning one of our companie looking overboard, saw a mermaid: and calling up some of the companie to see her, one more came up, and, by that time she was come close to the ship's side, looking earnestly on the men; a little after, a sea came and overturned her; from the navill upward, her back and breasts were like a woman's (as they say that saw her), her body as big as one of us, her skin very white, and her long hair hanging down behind, of colour blacke; in her going down they saw her tayle which was like the tayle of a porpoise, and speckled like a mackerel."

On his fourth trip, Hudson was again under the English flag. This was to be his last trip. With little understanding of the value of money, the old explorer accepted "miserably insufficient funds" and put to sea with a crew from the slums of the water front in one battered old hulk of a vessel provisioned for a bare six months. The ice and fog terrified the weak-kneed crew and they begged the commander to turn back. With the vision of the riches of the Indies before him, he reached the strait and the bay which he named Hudson Strait and Hudson Bay. For three months he sailed on while the crew muttered and grumbled and grew daily more surly and rebellious. At last his ship became frozen in the ice and held fast for the winter. What agony of mind the gallant old commander endured during these desperate months with his failing supplies, his baffled voyage and his crew of wharf rats, no human tongue can ever tell.

June came in the arctic circle. The ice broke and the ship was free to sail out into Hudson Bay. Mutiny broke out. The half-crazed crew seized Hudson and, with six sick men, the ship's carpenter, who had refused to join the mutineers, and the cabin boy, set him adrift in a small boat. He sailed on, still unbeaten, to drown at last in the frigid waters of the bay which he had discovered. The mutineers suffered frightful consequences for their treachery. Some of them were killed by Eskimos; others died of starvation; while the ravages of scurvy left the living in agony.

The news of the discovery of Hudson Bay encouraged the London merchants to furnish further funds for its exploration in the hope that its western shores might yield the secret of the "Long Sought Passage." But as expedition after expedition returned without result the Northwest Passage became a byword in men's mouths and all hope of its existence was abandoned. Among the explorers who sailed north during these years were Sir Thomas Button in 1612; Gibbons in 1614; Bylot in 1615; and William Baffin, 1616.

It was upon William Baffin's advice that England gave up the search. A competent explorer and a brave man, Baffin discovered Ellesmere and Prudhoe islands and Baffin Bay, with its sounds, Smith, Jones, and Lancaster. Lancaster Sound, had he followed it, would have opened to him the passage for which he sought, for it was through that sound that the Northwest Passage was finally made more than two centuries later. But Baffin, believing it was an inclosed gulf, sailed past it, and beating his way through the drifting icebergs back to London informed the merchants that the Northwest Passage was a myth, that it did not exist, and that it was futile to search for it.

The search of three centuries was ended. For more than two hundred years "the waters of Baffin Bay were to be undisturbed by any keel." Baffin's advice was perhaps accepted the more readily because public imagination in England had by now turned to the New World. To France and England, Canada and the American coast held out promise of wealth and for more than a century explorers, adventurers, merchants, and rulers turned their eyes westward. Negro slaves were brought from Africa into Virginia in 1619. The Pilgrims settled in New England in 1620, and the Scots in Nova Scotia in 1622. Under Peter Minuit the Dutch purchased Manhattan Island from the Indians for $24. In 1638 Delaware was settled by the Swedes.

Undreamed of wealth, however, waited on those who should first find the Northeast Passage, and it was the Russians under Peter the Great who first explored the northern coasts of Siberia within the arctic circle. The Russian Dezhneff first sailed the Arctic Sea through Bering Strait into the Pacific, thus proving that the continents of Asia and America were not united, and set up the first settlement of civilized men in the Bering Sea region inside the arctic circle. In 1725, the last year of his life, Peter the Great sent out the Great Northern Expedition for the primary purpose of exploring the northern coasts of Siberia within the arctic circle. Vitus Bering, the Dane who commanded the expedition, not only satisfied the geographical curiosity of the Russians but stumbled upon sources of wealth of which he was not slow to take advantage.

For seventeen years, Bering pursued his explorations with ruthless demands upon the native tribes, impoverishing them almost to the point of starvation and extinction while he created the first huge fortune to come out of the

Arctic. He discovered neither the sea nor the strait which bears his name, but the region which he opened by his efforts to Russia proved to be so rich in fur—seal, walrus, sea otter, fox, and beaver—that the wealth withdrawn from it by the Russians before its cession to the United States was estimated at $100,000,000.

This old explorer's last voyage is a tale comparable to the sagas of his viking ancestors. Leaving the harbor of Kamchatka in 1741, after six weeks of voyaging he sighted land. Seventeen men went ashore in a small boat to investigate. They never returned. It was conjectured that they were killed by hostile natives. Their loss crippled the expedition to such an extent that Bering was forced to send one ship home. Sailing on, he himself encountered a violent storm that beat upon his ship incessantly for seventeen days. Scurvy broke out aboard and numerous deaths disheartened his men. Pleading pitifully they induced Bering to turn back towards home, but through error in his instruments, he missed the proper course. No land was sighted and they were lost in the arctic seas.

Deaths from scurvy occurred daily; the ship was so undermanned as to be almost unmanageable; fresh water was running out. The long night came on. The helpless ship drifted for days at the mercy of the bitter elements. When hope of life seemed gone, land at last came into sight. But the coast was barricaded with rocks, and the men lost both anchors and cables in an attempt to anchor. Hope was again abandoned, and the terrified men, drifting on the rocky shore, took refuge in prayer. As though by a miracle, a huge wave suddenly lifted the vessel and with a splintering crash drove it over a sandbar into calm water.

The small island to which they had come was barren and treeless and was occupied by bears and ravenous foxes. Using the cloth of their tattered sails, they rigged rude shelters under the sand banks, to which they brought their dying shipmates. The strain of moving was too much for many of these men and they died before reaching shore. The record states that "their hands and feet were much eaten by foxes before they could be interred on the frozen beach."

In a special shelter the old commander, his body emaciated from lack of food, his mind enfeebled from strain and worry, lay in wild delirium. His clutching hands gathered the sand on which he lay and strewed it over his body. Two weeks before Christmas he died. "There he rests . . . Bering Island his sepulchre . . . and his name . . . on every map of the world, showing the straits dividing North America and Asia, through which he sailed in the glory of his prime."

Forty-five survivors of the crew of seventy-five remained imprisoned on the desolate coast through the winter. When their ship was crushed and sunk by the grinding ice, they attempted to build a vessel in which to escape in the spring. A clumsy boat was finished by August. They named it the "St. Peter" and set sail. Burying their dead at sea as one by one they gave up the fight, "by the Grace of God" a few of them made the Bay of Awatska at the end of the same month.

In England at some interval in his worries with the Colonies, George III, in 1773, turned his attention to the geographical question of the location of the north magnetic pole. Two ships of the English Navy were fitted out and put under the command of Captain Constantine J. Phipps. With Phipps went the famous Lord Nelson as coxswain,

then a young man of fifteen years. The two ships arrived off the western coast of Spitzbergen in about latitude 80° 48′ N., where they fell in with whaling vessels whose skippers told them that the ice lay fifteen leagues or so ahead and that three ships had already been lost.

Undismayed, Phipps coasted forward to meet the ice and, sailing back and forth along its southern edge, sought an opening. Venturing within a narrow lane of clear water, he sailed to its extremity, only to find that his retreat had been cut off by ice. His ships were surrounded by ice and for two weeks lay in an exceedingly dangerous position. At the end of that time, Phipps determined to abandon the ships and take to the ice with the small boats in the hope of dragging them to open water. For six days over many weary miles they dragged them, when suddenly a break in the ice opened before the ships. Captain Phipps directed all hands to return aboard and the suddenly released vessels buffeted their way through the bergs to safety.

Phipps's adventure was but an interlude in the active life of the world. Polar fights had now given way to battles nearer home. Adventurous men were throwing in their fortunes with Washington on the battlefields of America and later with Napoleon in the conquest of Europe. The farthest north record still stood where Hudson had set it at 81° 30′. The arctic seas were abandoned to old whalers who, in their isolation, knew almost nothing of the revolutions in Europe and America. Far more important to them than the rise and fall of nations were battles with the whale and the walrus, with the seal and the polar bear, where the spoils of war were skins and oil and ivory.

Then came a year when whaling captains brought down tidings from the North that there was little ice in

arctic waters and that Greenland whalers (1817) had sailed beyond 80° and found their progress still unimpeded. Old dreams of the riches of Cathay which centered around the discovery of a northwest passage had by now vanished in the solid reality of the New World, but the question of what might lie around the north pole and in the unknown territory to the northward of Greenland and Spitzbergen had still to be solved. The two wars in America had ended in victory for the Americans. Napoleon was now safely in exile at St. Helena. The British admiralty, therefore, gave ear to the talk of whalers and, fitting out two expeditions, sent them north with instructions to strike for the north pole or, failing that, to explore the unknown territory of the Arctic.

Captain John Ross and Lieutenant Edward Parry, sea fighters, were placed in command of the expeditions. Sailing north in the "Isabella" and the "Alexander," they were imprisoned by ice for many days with forty-five vessels of the whaling fleet (1818-20). By working through the ice, they finally forced their way into the clear waters of a bay, to which they gave the name Melville Bay. The vision before them was astounding. "Red snow! Red snow!" Ross sent word of the startling discovery back to England, where the phenomenon gave rise to scientific disputation for many years. Ross took oath that on the cliffs the red snow lay to the depth of ten or twelve feet. He examined it, he said, and found it to be the color of blood. On his return to England his story was ridiculed and jeered. The men of his expedition, "who had seen it," were "bigger liars than Munchausen."

The dispute which arose over the discovery of red snow was as nothing to the verbal storm which assailed Ross over the reported discovery of the "Crocker Mountains,"

MAGELLAN'S SHIPS WERE FIRST TO SAIL AROUND THE WORLD—1519

The voyage required 1,083 days Dr Eckener in the "Graf Zeppelin" made the same journey in 21 days (1929) Magellan died on the Pacific and was buried at sea



OLD PRINT OF MAGELLAN



VASCO DE GAMA



HENRY HUDSON ON THE DISCOVERY OF HUDSON BAY—1610

His crew in mutiny set him adrift with six invalids, the ship's carpenter, and a small boy. They were lost in the arctic seas.

which he claimed had barred his way from making further progress in Lancaster Sound. The range proved to be an atmospheric illusion, a mirage, which had deceived even so experienced an explorer as Captain Ross. The story covered him with ridicule and lost for him the credit which he deserved for a careful mapping of the west coast of Davis Strait and for valuable explorations into the waters of Baffin Bay. "Give us sane men, not fools," demanded the British. "We want no more men who see 'red snow' and 'dream mountains.'"

In the same year (1818), under sealed orders from the admiralty, two more ships sailed for the Arctic. They were the "Dorothea" and the "Trent," under the command of Captain David Buchan and Lieutenant Franklin, who was to become the famous Sir John Franklin. Among the officers was Captain Beechey, a writer and an artist of talent, whose work later aroused England and brought widespread popularity and fame to the achievements of the expedition.

Separated in a gale off Spitzbergen, the two ships met again in Magdalena Bay under the grandeur of mountains rising two and three thousand feet sheer from the sea, their deep valleys filled with immense glaciers covered with gleaming snow. Amazed by the vision, the men watched great masses of ice break away and fall into the sea with deafening reverberations. Beechey measured one of the bergs which had fallen from a height of two hundred feet and found it to be more than a quarter of a mile in circumference. Computing its weight, he arrived at the astounding total of 421,660 tons. The waves set up by its precipitation into the water caused the "Dorothea" to rock violently backwards and forwards, although she was lying more than four miles away.

Buchan reached 80° 37′ N. before it became apparent that he could penetrate no farther. Wind of hurricane violence tore out of a cloud, blackened the sky, and threatened the hard-pressed ships with momentary destruction. As a last resort, his ships driven against the shore ice and battered by icebergs, the intrepid commander swung the bow head on to the ice pack. With all the force of the terrific gale behind him, he drove straight for it.

Faces blanched with terror. Men held fast to await the appalling impact. Beechey told the story: "In an instant, we all lost our footing: the masts bent with the impetus, and the cracking timbers from below bespoke pressure that was calculated to awaken our serious apprehensions. The vessel staggered under the shock and for a moment seemed to recoil. . . . The next wave, curling up under her counter, drove her about her own length within the margin of the ice. . . . She gave one roll . . . and was immediately thrown broadside to the wind by the succeeding wave, which beat furiously against her stern, and brought her lee side in contact with the main body, leaving her weather side exposed at the same time to a piece of ice about twice her own dimensions.

"Assailed on all sides by battering-rams, and dealt such unrelenting blows, there appeared to be no hope of saving her from foundering. Literally tossed from piece to piece, we had nothing left but patiently to abide the issue. . . . We could scarcely keep our feet, much less render any assistance to the vessel. . . . The motion was so great that the ship's bell, which, in the heaviest gale of wind, had never struck of itself, now tolled continuously. . . . It was ordered to be muffled, for the purpose of escaping the unpleasant association which such tolling was calculated to produce."

Battle raged against the seething ice-clad seas. Courageous seamen crowded on more sail. Full speed ahead! The ship was hurled forward by cyclonic winds. There was a terrific crash. The ice floe was split! It hissed, shattered, and retreated.

The incredible pounding had done its deadly work, and the voyage was ended. After temporary repairs at Spitzbergen, the "Trent," led for protection by her sister ship, the "Dorothea," limped back through the seas to England.

CHAPTER VIII

THE HEROIC STRUGGLE FOR THE NORTHWEST PASSAGE

THE failure of England during two hundred years to better her own record of 81° 30′ N., set by Hudson in 1607, had, by the beginning of the nineteenth century, become a source of humiliation to British pride and British valor. Deeply rooted love of adventure and the rapidly increasing zeal for science spurred both the government and individuals to constantly renewed attempts to win through the remaining eight and one-half degrees to the top of the world. To stimulate a new interest, too, in a northwest passage, now that the dream of Cathay no longer held the imagination of men, the British Parliament had offered a prize of £5,000 to those who first crossed long. 110° W., and a like sum to those who first crossed long. 130° W. In spite of the government's efforts, however, the incident of the "red snow" and the "Crocker Mountains" had left a sediment of ridicule in the minds of the English nation which both harassed and embarrassed the admiralty. To redeem itself and to bring the Arctic back into popular esteem, in 1818 the admiralty again ordered two ships, under the command of Lieutenant Edward Parry, to sail to Lancaster Sound and "clear up the Ross fiasco."

Supplied with food for two years and fitted with the most modern scientific equipment then available, the "Hecla" and the "Griper" entered Lancaster Sound from Davis Strait. Sailing along over the site where the "Crocker

Mountains" were said to have been located, Parry and his men won Parliament's prize of £5,000 by crossing long. 110° W. Since it was too late in the season either to cross meridian 130 or to dare a return voyage, Commander Parry sought shelter at Melville Island, which he had discovered several weeks earlier. Here he made intelligent and methodical preparations for the long night which was closing about him.

As the dangers of breaking and drifting ice threatened his ships, he undertook the enormous labor of cutting a channel more than two miles long through ice seven inches thick. Warping a boat through the narrow passage, he and his men secured her to the ice, roofed over the deck, and set up a heating plant to meet the siege of the long cold. Having attended to the physical comfort of his men, Parry turned his attention to the problem of keeping up their spirits through the interminable months. As a preliminary step, he issued the first newspaper ever published in high arctic latitudes. Next, he organized a school and arranged for the regular attendance of every man. Languages, navigation, geography, and mathematics were taught by the officers. For the recreation of his men, he instituted regular theatrical performances and exercises to the tunes of a barrel organ which had been brought from England.

However, in spite of the most thoughtful care, the persistent Arctic conspired to break down the resistance of the invaders. Ten months passed before the ice broke up in the rays of the returning sun. Scurvy and snow blindness attacked the men. The mercury dropped sometimes as low as 54 degrees below zero. Fire broke out in the astronomical observatory which had been set up at a little distance from the ship. While the crew threw snow

over the instruments in order to preserve them from the blaze, their faces and hands were nipped by the frost. The surgeon affirmed later that when one of the crew whose hands were frozen plunged them into a basin of water, the water instantly froze from the contact. Although the man's hands had been exposed to the weather for less than five minutes during the excitement of the fire, it was necessary to amputate three fingers of one hand and four of the other.

Finally the ships were free. Parry, after a vain effort to explore the waters to the west, returned to England to find himself a national hero. Faith in the Northwest Passage had been restored, and as a reward for his services the admiralty determined to send him back. With two ships, the "Fury" and the "Hecla," he left England for the second time in 1821. Failing to penetrate the ice about Repulse Bay, he lay the first winter to the southward of Melville Peninsula. His men, during the long months, cultivated friendly relations with the natives and made many short sledge journeys overland to explore the surrounding regions Coming upon a strait which they named Fury and Hecla Strait, after their ships, they thought they had discovered the "road to the Northwest Passage" but attempts to pass through proved futile, for the strait was barricaded by impenetrable ice.

Reaching harbor in Lerwick, Scotland, in 1823, Parry declared that a passage to the westward through the ice-bound Fury and Hecla Strait was impracticable. But the British admiralty refused to take no for an answer to its quest and for the third time sent him back to face the stubborn ice floes and blinding storms. With the same ships, he left England in 1824, only to be bitterly disappointed. His ships, imprisoned by the ice for ten months

in the neighborhood of Lancaster Sound, were badly battered. The "Fury" was thrown violently on shore and so crippled that it was found necessary to abandon her. Caching all surplus supplies and taking her crew and necessary supplies into the "Hecla," Parry gave up the attempt and returned to England.

Three trips had done their work with him. The arctic fever was in Parry's blood and he had become obsessed with the determination to penetrate the Arctic to the north pole itself. Failing that, he would complete his life's work by setting a farthest north record for England. This time he made his own proposition to the Lord Commissioner of the Admiralty. He proposed "to attempt to reach the north pole by means of traveling with sledge boats over the ice, or through any spaces of open water which might occur." The proposal appealed to the government.

The sturdy old "Hecla," with two sledge boats aboard, set out on her last voyage. Reaching anchorage in Hecla Cove at Spitzbergen, Parry began his journey by sledge boats over the arctic wastes. Each boat's crew consisted of two officers and twelve men. With each boat were provisions of pemmican, biscuits, cocoa, and rum for seventy-one days, spirits of wine to be used as fuel, warm changes of clothing, sleeping bags, and extra supplies of boots. Soon constant rains turned the ice into a mass of slush, and the men had to creep for miles on hands and knees. Where the slush had again frozen, razor-like edges cut through their boots at every step. Great hummocks of ice rose constantly in the pathway, and the boats had to be unloaded, pulled over, and loaded again. Parry noted in his log:

"Traveling by night and sleeping by day [on account of the slushy condition of the ice] so completely inverted

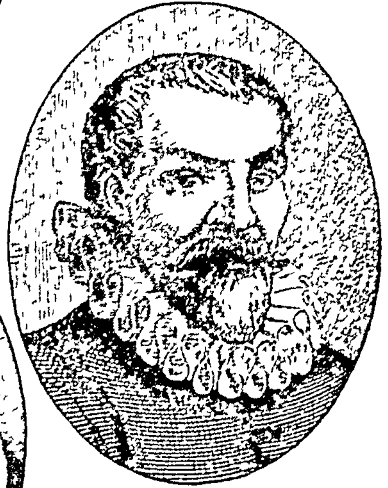
the natural order of things that . . . several men on board declared that during the whole course of the expedition they never knew night from day. . . . We commenced the day with prayers, after which we took off our fur sleeping dresses and put on clothes for traveling, the former being made of camlet lined with raccoon skin and the latter of strong blue cloth. . . . Our boots were always wet or hard frozen."

Laboriously for thirty-five days the men struggled on. Then one day they made a discovery: they were standing still. The ice floe upon which they were traveling was drifting southward almost as great a distance every day as they were making northward. But their observations showed, too, that on the treadmill ice they stood at 82° 45′ N. After more than two hundred years, they had broken the world's record!

"At the extreme point of our journey," Parry noted in his log, "distance from the 'Hecla' was only 172 miles in a southwest direction. To accomplish this distance we had traversed by our reckoning 292 miles, of which about 100 miles were performed by water previously to our entering the ice. As we traveled by far the greater part of our distance on the ice, three, and not infrequently five times over . . . our whole distance, on a very moderate calculation, amounted to 668 statute miles, being nearly sufficient to reach the pole in a direct line."

Turning back, Parry and his men set out for the "Hecla." Fifty-six hours they spent without rest, drenched by spray and snow, in their small boats in the midst of an arctic storm. They steered for one of the most northerly rocks of Walden Island, where they had cached provisions. After forty-eight hours' additional labor, hauling up the boats and preparing camp, they sat down to a hot supper








982 ERIC THE RED
1576 SIR MARTIN FROBISHER
1596 WILLEM BARENTZ
1607 HENRY HUDSON
1612 SIR THOMAS BUTTON
1631 THOMAS JAMES















1818 FABIAN BELLINGSHAUSEN

1772 JAMES COOK

1823 BENJAMIN MORRELL

1833 JULES D'URVILLE

1823 JAMES WEDDELL

1838 LIEUT. CHARLES WILKES

1840 JAMES ROSS

before a roaring fire of driftwood. Ten days more and they set sail on the "Hecla" for England, to whose flag they had added glory.

What a home-coming it was! Parry was now a world hero. From the time when he had discovered Melville Island in his twenty-eighth year to the close of his last voyage he had made a splendid record:

"He had proved that Lancaster Sound could be navigated; he had proved the nonexistence of the 'Crocker Mountains'; he had proved that Prince Regent Inlet opened into Barrow Strait, and that this in turn widened into Melville Sound and continued on into the polar ocean itself; he had added to the map the important archipelago of Parry Islands, many of which he named and explored; he had outlined the sounds, bays, and inlets through which he had sailed, discovered Hecla and Fury Strait, and demonstrated the impracticability of making the Northwest Passage through Frozen Strait."

But more than all, he had penetrated farther north than any other white man.

Parry's acclaim must have had a bitter sound in the ears of John Ross, who for ten years had suffered under the ridicule and embarrassment of the "Crocker Mountain" episode. For ten years he had been subjected to taunts and gibes, and for ten years he had been unable to persuade anyone to give him financial backing for an expedition to clear his name. The British admiralty was consistent in its refusal to listen to any of his proposals. In an attempt to organize a private expedition to explore Lancaster Sound, where he had made his costly error, he met with failure. No one, apparently, cared to have anything to do with his projects. He was nearly in despair when Parry returned in triumph from the North.

Whether the idea that Parry had won on a "last chance" influenced Felix Booth or not is not known, but about this time this wealthy distiller suddenly decided to subscribe £17,000 toward an expedition for Ross. "Give Ross one more chance!" he exclaimed, and Ross, stirred by his demonstration of faith, replied, "I will add my entire fortune as well as my life to prove my good faith."

Ross purchased a small side-wheel steamer, christened her the "Victory," and equipped her with provisions for three years. He appointed his nephew, James Clark Ross, mate and second in command James Ross had sailed with Parry on all his voyages and had accompanied his uncle on his own earlier voyage. With high hopes the two left England in 1829 and turned the bow of the "Victory" northward.

Three years went by. Nothing was heard from the expedition. As the fourth year wore on and still no word came from John and James Ross, they were given up as lost. A call was made upon the public to supply funds to send out a relief expedition. The response was generous, and with money thus raised and a liberal addition from the public funds, an expedition under the command of Sir George Back took passage for Montreal in 1833. In Montreal Captain Back proposed to purchase canoes and ascend the St. Lawrence River to seek traces of Ross among the natives of the northern coast of America.

Captain Back found and surveyed to its source the Great Fish River of the Indians, later named for him the Back River. After incredible hardships, he and his men gained the arctic coast in 1834, discovering Point Ogle and Point Richardson, catching sight of Boothia Felix, and reaching 67° 11′ N. They found no traces of Captain John Ross.

Meanwhile, lost to the world far up in the Arctic, that noble old man was making the last grand fight of his life to retrieve his name and fortune. Death held no terrors compared to the ridicule he had suffered. Voyaging in his old paddle box through Prince Regent Inlet to the spot where the "Fury" had been abandoned by Parry about four years before, he had found fate on his side for the first time in his life. The supplies which Parry had been forced to leave behind saved Ross and his men from starvation. Hermetically sealed tin canisters had protected them from the ravages of the bears.

Before lying up for the first winter in Felix Harbor, he explored about five hundred miles of new coast line in the neighborhood of Cape Garry. The side-wheeler once in the harbor, he dumped the steam engine overboard to save further trouble. "A useless contraption," he called it. The following spring, on a sledge journey, he discovered King William Sound and King William Land. The "Victory" which had been frozen in the ice for twelve months was now released, but after making only three miles, she was again frozen in. Ross pushed on by sledge, and one day on Boothia Land, the uppermost tip of the continent of North America, the dream of his life came true. He had come to great victory. What emotions passed through his soul only he himself ever knew. He stood at the north magnetic pole, 70° 5′ N., 96° 46′ W.

After eleven more months in the ice, the "Victory" was freed for a progress of four miles before she was frozen in again. Finally, captain and crew were forced to abandon her. Nailing her flag to the mast, they left her to her fate in the dreary arctic wilderness. The gallant old commander was deeply affected. Tears came into his eyes as he wrote:

"It was the first vessel that I had ever been obliged to abandon after serving in thirty-six ships during a period of forty-two years. It was like the last parting with an old friend . . . . I did not pass the point where she ceased to be visible without stopping to take a sketch of this melancholy desert, rendered more melancholy by the solitary, abandoned, helpless home of our past years fixed in immovable ice till Time should perform on her his usual work."

Stumbling now upon the stores which Parry had left at Fury Beach and finding in addition the small boats which Parry had also abandoned there, he embarked his men in an attempt to reach a whaling station. Unsuccessful, they returned to Fury Beach and spent their fourth long winter in a hut built of a few old spars covered with snow. The inevitable scurvy broke out, but spring once more allowed them to embark in the small boats, and, finding the ice gone from Barrow Strait, they sailed down, not knowing what Fate would bring them.

Suddenly white sails were sighted. Ross was astounded. It was the ship "Isabella," the vessel on which he had made his first arctic voyage and which was now reduced to the whaling trade. The robust old whalers told him and his crew the news from civilization: how their friends had given up hope and the nation counted them among the dead.

"Never were seen a more miserable set of wretches," said Ross in telling of his rescue. "Unshaved since I know not when, dirty, dressed in rags of wild beasts, and starved to the very bones. Our gaunt and grim looks, when contrasted with those of the well-fed and well-dressed men around us, made us all feel what we must seem to the others.

"Every man was hungry and was to be fed; all were ragged and were to be clothed; there was not one to whom washing was not indispensable, nor one whom his beard did not deprive of all human semblance. All was to be done at once. It was washing, shaving, dressing, eating, all intermingled. It was all the materials of each jumbled together, while in the midst of all there were interminable questions to be asked and answered on both sides; the adventures of the 'Victory,' our own escapes, the politics of England, and the news which was now four years old! . . .

"Night at length brought quiet and serious thoughts. I trust there was not a man among us who did not then express where it was due his gratitude for that interposition which had raised us from despair which none could now forget, and had brought us from the borders of a most distant grave to life, and friends, and civilization."

When the "Isabella" had completed her loading of whale oil, she turned her prow homeward. Ross and his men arrived in London, as though risen from the grave, on October 15, 1833. It was a joyous day. Wherever Ross appeared, he was escorted by crowds of cheering sympathizers. Orders, medals, diplomas from foreign states and learned societies rained down upon him. London, Liverpool, Bristol, and Hull presented him with the freedom of their cities. Parliament granted him £5,000 as a remuneration for his outlay and privations. But more gratifying than all the honors was the satisfaction the old commander felt in having lifted from his name the reproach of failure. John Ross was vindicated.

Knighted by his king, old Captain John Ross became Sir John Ross, and went down in history as one of the stoutest hearts that ever sailed the arctic seas.

Bay base at York Factory in the Canadian wilderness to the mouth of the Coppermine River on the Arctic Sea, and exploring the northern coast of North America as far east as Point Turnagain. Then, at the end of three years, he went home to England, where the story of his accomplishment had roused the nation to a high pitch of admiration and esteem.

Again, in 1825, not content with the results of his three years of exploration, Franklin left the comforts of England for the hardships of the North. There, sailing down the Mackenzie River to the Arctic Sea and mapping the coast line, he brought the total mileage which he had added to the map of the world to about 1,200. In England, he found a tremendous ovation awaiting him. But his wife had died during his absence in the Arctic and it was with grief in his heart that he was summoned before the king to be awarded the honor of knighthood. He was now a notable figure in England, for, although he had not reached farther north than 70°, he had added considerably to the northern coast line of North America and by mapping certain regions around the polar sea he had proved that the Northwest Passage was not a myth but a fact. He could rest on his laurels in England.

This, for a time, he showed every intention of doing. He married a second wife, the charming and cultured Jane Griffin who, as Lady Franklin, would later play a tragic rôle in the climax of his life story. But as he felt old age creeping upon him, Sir John heard the call of the Arctic and longed for one last great battle. Fifty-nine years of age, he begged the admiralty for the command of an expedition that was being fitted out for "one more attempt to pass through the Northwest Passage." Sir John was too old and the admiralty hesitated. Then, in spite of his

years and because of his great fame and evident ardor, they granted his request. Sir John was the happiest man in the world as he sailed from the harbor of Greenhithe, May 19, 1845, in the "Erebus" and the "Terror," manned with 138 officers and men, provisioned for a voyage of three years, and equipped with the most modern scientific instruments of the day.

Two years passed with no news of the ships. Lady Franklin's anxiety was communicated to the government, which sent out three expeditions in different directions in search of the lost explorers. The first, under orders to go westward to Bering Strait, consisted of two ships, the "Herald," under Captain Kellett, and the "Plover," under Captain Moore. The vessels left England in 1848 and, cruising along the northern coast of North America left depots of supplies at points where it was believed the lost explorers might find them. Having come upon no traces of the lost men, they returned to England.

The second expedition, under the leadership of Sir John Richardson, proceeded overland by foot and by boat, exploring the region between the Coppermine and the Mackenzie rivers. It also left caches of boats and supplies but returned without news of Franklin.

On the theory that Franklin's ships might have been imprisoned in the ice, the third expedition, under Sir James Clark Ross, with two ships, the "Investigator" and the "Enterprise," cruised through Lancaster Sound and Barrow Strait. Coasting along the strait, Ross and his men caught numbers of white foxes and riveted copper collars about their necks on which were noted the position of the rescuing expedition and directions for finding food supplies. Ross, too, returned to England without news of the missing explorer.















1853 HENRY GRINNELL

1845 SIR JOHN FRANKLIN

1853 ELISHA KANE

1872 JULIUS PAYER

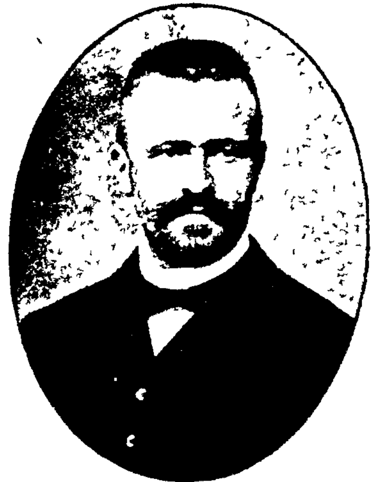
1864 CHARLES HALL

1874 GEORGE NARES

1879 G. W. DE LONG






1881 GENERAL A. W. GREELY

1881 JAMES B LOCKWOOD

1893 FRIDJHOF NANSEN

1897 ADRIAN GERLACHE

1901 OTTO NORDENSKIOLD

1902 ERICK VON DRYGALSKI

1898 CARSTENS BORCHGREVINK

It was now more than three years since Franklin and his men had been heard from. The English Government, becoming seriously alarmed, offered a reward of one hundred guineas to any private ship that should bring tidings of Franklin. This was followed with another offer of £20,000 ($100,000) to any whaler, ship, or private expedition that might render assistance to the lost explorers. Lady Franklin herself offered £5,000 to the officers and crew of any ship who should assist in their rescue.

Men everywhere were aroused. Within the next ten years, almost forty relief expeditions sailed for the North. Private ships, whalers, old sea dogs of many races, joined in the historic search. Twelve ships sailed on the forlorn quest in one year. The English Government and Lady Franklin herself sent one expedition after another into the arctic wastes to find the men or, at the least, to solve the mystery of their fate.

Finally, the distressed Lady Franklin made a heart-rending appeal to the President of the United States, in which she called upon the American nation as a kindred people "to join heart and hand in the enterprise of snatching the lost navigators from a dreary grave." Her pathetic pleading was answered by a generous merchant of New York, Henry Grinnell, who offered the government two well-equipped vessels, the "Rescue" and the "Advance." Under the command of Lieutenants De Haven and Griffith of the United States Navy, accompanied by the famous Dr. Elisha Kent Kane, this expedition left New York May 23, 1850.

A long silence enveloped the Arctic. It closed in on the fleets of rescue ships, "the pall of death under a funeral shroud." In America and in England, suspense and anxiety increased with the passing months. Slowly, battered ships began to straggle home and the news they brought

stirred the world. "Franklin," they said, "has not been found, but they are on the trail of the lost explorers, and traces even have been found of his abandoned camps. It will not be long now." London rejoiced. The hopes of Lady Franklin revived.

The first traces had been discovered by Captain (afterward Sir) Erasmus Ommanney of the British ship "Assistance" and by the American ship "Rescue" of the Grinnell expedition. On Cape Riley and Beechey Island, along Lancaster Sound, the gateway to the Northwest Passage, the men of these ships had found the top of a preserved meat tin, a piece of canvas, the gore of a pair of trousers, piles of shavings, and numerous circular heaps of rocks where tents had evidently been erected. "The indications were meager," reported Doctor Kane of the Grinnell expedition, "but the conclusions they led to were irresistible. They could not be the work of Eskimos . . . the whole character of them contradicts it. The only European who could have visited Cape Riley is Parry, twenty-eight years before, and we know from his journal that he had not encamped here. Then again Ommanney's discovery of like traces on Beechey Island, just on the track of a party moving between it and the channel—all these speak of a land party from Franklin's squadron."

Hope of rescue was further increased when traces were found by searchers at Cape Spencer, some ten miles above Cape Riley, but following this, Lieutenant De Haven of the Grinnell expedition and Captain William Penny of an expedition sent out by Lady Franklin made a discovery which, while it was valuable as a bit of evidence, enveloped the fate of the party in yet deeper mystery. While they were engaged in making a further examination of Beechey Island, a messenger came running to them:

"Graves! Graves, Captain Penny! Graves! Franklin's winter quarters!"

By a coincidence, five of the searching vessels were at that moment located within a quarter of a mile of each other. Captain Penny, Commander Phillips, and Doctor Kane, joined by a party from the "Rescue," hurried over the ice. Scrambling along a loose and rugged slope that extended from Beechey Island to the shore, they reached the crest of the isthmus.

"Here, amid the sterile uniformity of snow and slate, were the headboards of three graves, made after the old orthodox fashion of gravestones at home. The mounds which adjoined them were arranged with some pretensions to symmetry, coped, and defended with limestone slabs. They occupied a line facing toward Cape Riley, which was distinctly visible across a little cove at the distance of some four hundred yards. Most melancholy of all were the remains of a little oval flower garden where some flower-loving sailor had transplanted and tended with loving care such hardy plants as would grow in this desolate wilderness."

Three men lay here as silent witnesses to a tragic mystery, but where, the officers asked, were the living, if there were any living? Where was Franklin? The most careful search failed to reveal any indication of Franklin's intentions nor could any further trace be found of what had happened to him and his men after they left their first winter headquarters to vanish into the silent arctic mists.

The first Grinnell expedition returned to America, having failed to discover whether Franklin or any of his men were still among the living. Lady Franklin, deeply distressed, urged Doctor Kane to renew the search in charge of a second expedition. He consented to do so and was

assigned for this "special duty by the Secretary of the Navy." The expedition was financed this time by Grinnell of New York and Peabody of London. The entire personnel consisted of seventeen men, ten of whom were also assigned for the purpose by the Navy Department.

The "Advance," the same ship used on the first Grinnell expedition, sailed from New York Harbor May 30, 1853. For more than three months she pushed steadily northward, through Baffin Bay, across Melville Bay in the wake of huge icebergs, and up the coast of Greenland, until, on the tenth of September, hope of further progress was given up and Kane settled for the winter in Van Rensselaer Harbor, 78° 45′ N. Here the stanch timbers of the old "Advance" still lie, for she was destined never to be freed from the ice of that desolate inlet.

"The winter of torture," Kane's men called it. Appalled by the desolation, fearful of the darkness and the scurvy, disheartened by the bitter cold which set in in unexampled intensity, officers and men alike, with but one exception, urged Doctor Kane to return. The brave old doctor steadfastly refused. "Our thermometers," he records, "ranged from 60 degrees to 75 degrees below zero. An arctic day and an arctic night age a man more rapidly and harshly than a year anywhere else in the world." The crew went down with the scurvy. The very dogs died, showing symptoms of lunacy, fits, and lockjaw.

Unwilling, under any circumstances, to surrender his purpose, Kane selected a party of the few who were able to walk and sent them to establish a depot of supplies to be used during a contemplated search in the spring. Eleven days later three of the men staggered back to the ship, their limbs swollen, their faces haggard, their knees sinking under them with exhaustion.

"Their story," Kane wrote, "was a fearful one. They had left their companions on the ice, risking their own lives to bring us news: Brooke, Baker, Wilson, and Pierre were all lying frozen and disabled. Where? They could not tell. Somewhere in the hummocks to the north and east—snow had been drifting heavily round them when they parted. Irish Tom had stayed by to feed and care for the others; but the chances were sorely against them. It was in vain to question them further. They had evidently traveled a great distance, for they were sinking with fatigue and hunger, and could hardly be rallied enough to tell us the direction in which they had come."

Quickly gathering the necessary equipment and taking with him nine men, Doctor Kane set out to the rescue, hopeless as it seemed. The thermometer stood at nearly 50 degrees below zero. Traveling for sixteen hours, the rescue party itself began to lose its way among the hundreds of bergs and hummocks, all of which looked alike. At last Doctor Kane pushed in advance of his straggling men, and came upon a flat stretch of ice, along which he directed the failing footsteps of his party. To stop to rest was unthinkable, for only constant exercise could keep life in the body at such a temperature. Kane himself fell fainting twice as he struggled on against the bitter winds, but with indomitable courage he cheered and urged forward his men.

"We had been nearly eighteen hours without food or water," he related afterwards, "when a new hope cheered us. I think it was Hans, our Eskimo hunter, who thought he saw a broad sledge track. The drift had nearly effaced it, and we were some of us doubtful at first whether it was not one of those accidental rifts which the gales make in the surface snow. But, as we traced it on to the deep snow among the hummocks, we were led to footsteps. . . . ."

A thrilling vision greeted them: a small American flag fluttering from a hummock, and lower down a little Masonic banner hanging from a tent pole hardly above a drift. After an unbroken march of twenty-one hours they had reached the camp of their comrades.

Crawling beneath the fold of the tent on his hands and knees, Kane entered the frail shelter. In the semi-darkness he saw four poor fellows lying helpless on their backs. They raised a faint cheer to greet him. "We expected you. . . . We were waiting. . . . We knew you would come," they muttered in weak whispers. Kane confesses his heart was moved to tears by their confidence. Fifteen men had depended for their very lives on his courage and guidance.

The thermometer registered 75 degrees below the freezing point. Each man in turn took two hours' sleep while the others prepared for the homeward march. The sledge was packed with its burden of disabled men. It weighed 1,100 pounds, and they must drag it over the hummocks and through the drifts by forced marches.

The weary men went onward, hoping to halt for rest at a halfway tent which they had set up on the journey from the brig. Drowsiness, which precedes freezing, fell upon them. To sleep even for an instant was never to wake again Yet sleep hung on their eyelids and threatened each moment to overcome them. Hans, the Eskimo, succumbing to insidious slumber, was rescued with difficulty from a drift. Thomas stumbled forward, delirious, with both eyes closed. Blake threw himself upon the ground and neither order nor entreaties availed to rouse him. Gently Kane covered the three men over as best he could and pushed on. Nine miles away was the tent where he hoped to prepare warm food and obtain rest.

Moving forward as in a dream, the sleep-driven men forced themselves to keep up a constant stream of meaningless talk. Words of delirium fell from their lips in insane mumbles. Ahead a bear was tearing and gnawing at a discarded jumper, playing with it as a kitten plays with a ball. The tent was down. With freezing fingers they erected it once more and, crawling inside, surrendered themselves to three hours of deep sleep. Kane's beard froze to the buffalo robe which covered him and had to be cut away with a knife when he awoke. The men he had left behind came stumbling up, and together they set out on the last weary pull for the ship.

"Our efforts," recorded Kane, "were literally desperate, for strength failed us anew, and we began to lose our self-control. We could not abstain any longer from eating snow; our mouths swelled and some of us became speechless. . . . Our halts multiplied, and some of us fell half sleeping on the snow. I could not prevent it. We reached the brig about 1.00 P.M. We were quite delirious and had ceased to entertain a sane apprehension of the circumstances about us. Our footmarks seen afterwards showed that we had steered a bee line for the brig. It must have been by instinct, for it left no impress on the memory.

"Bonsall was sent staggering ahead, and reached the brig, God knows how, for he had fallen repeatedly at the track lines; but he delivered with punctilious accuracy the messages I had sent by him to Doctor Hayes. I thought myself the soundest of all, for I went through all the formula of sanity and can remember the muttering delirium of my comrades . . . yet I have been told since of some speeches, and of some orders, too, of mine, which I should have remembered for their absurdity if my mind had retained its balance."

Men from the ship took the sufferers in. They were rubbed until circulation returned, fed with a little warm food, and put to bed. One remained blind for several weeks; two suffered amputation of part of their feet; and two died in spite of all efforts. No men ever fought a harder or a braver fight against the elements. They had been for seventy-two hours on their mission of mercy and had traveled between eighty and ninety miles, dragging with them for most of the journey the heavily loaded sledge.

Kane was unconquered. Leaving four able-bodied and six disabled men on the brig, he traveled with seven men to the edge of the Great Humboldt Glacier, that bridge of crystal ice which connects the island of Greenland with the continent of America and stretches away in solitary grandeur to within a few hundred miles of the north pole itself. Here, however, strength failed and Kane was forced to turn back. Seized with a sudden pain, he fainted and his limbs became rigid. His men strapped him on the sledge, where he succumbed to delirium. His comrades carried him back by forced marches. On the brig, he lay for a week between life and death. Was another tragedy to be added to the death roll of the Arctic?

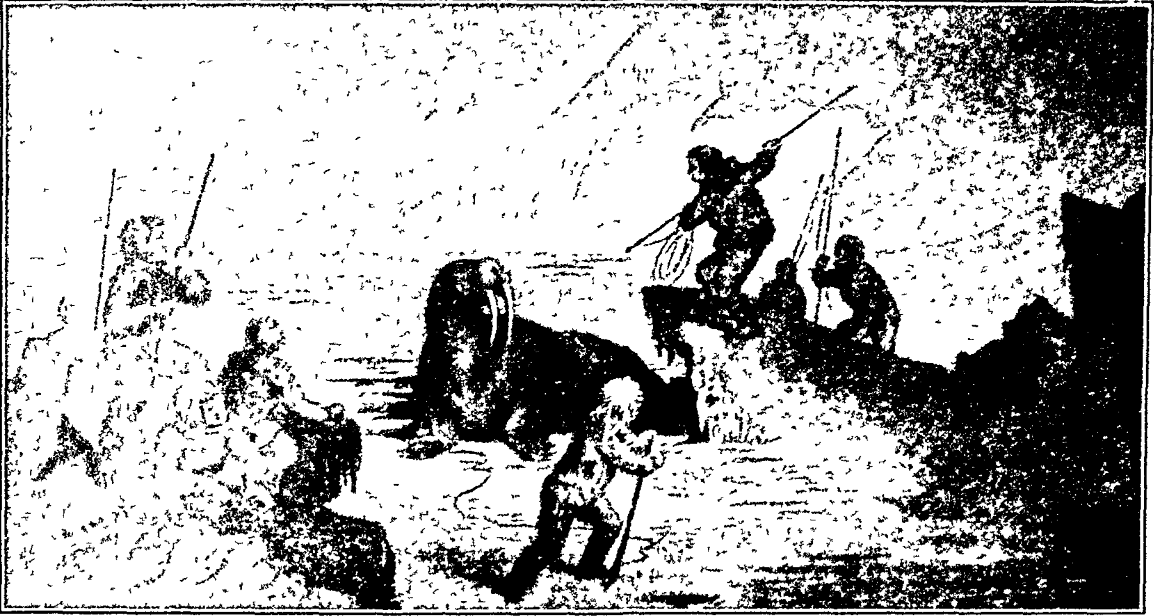
In the spring, however, Kane, emaciated and with the mark of death upon him, was again commanding his men in desperation to find the lost Franklin. Pushing on, they found no trace of Franklin, but their grim courage brought its own reward. Their advance post, under William Morton, came to world fame. The flag that Kane had carried on two polar expeditions, the same flag that Lieutenant Charles Wilkes had carried on his discovery of the Antarctic Continent, was planted at 82° 27′ N., and the world's record of the farthest north on land passed over to America. The record on the sea, set by Parry, still stood with England.

DESOLATE GRAVES TELL THE TRAGIC TALE OF THE ARCTIC

First traces discovered of Franklin's lost expedition "Snow Tombs" on Beechey Island (1850)

STORM-TORTURED AND ICE-BESET

De Haven, Kane, and their gallant men, pursued the hopeless task of finding Franklin's crew, lost for three years among these fearful wastes of ice and snow Sketches by Kane Engraving by Sartain



KILL OR BE KILLED?

De Haven's starving crew lived for months on the flesh of walrus and seal To miss a day's hunting was to suffer the pangs of hunger and the insidious, deadly advance of the dreaded scurvy.

KANE'S LIFE WAS SAVED BY HIS FRIENDSHIP WITH THE ESKIMOS

He shared his scanty food with them Time after time they came with offerings of bloody flesh when he and his men were famished and dying.

Chapter X

RESCUE SHIPS ON THE TRAIL OF THE GREAT MYSTERY

TWELVE rescue expeditions had now given up the search for Sir John Franklin. Eight were standing their ground. Doctor Kane could have turned back to civilization in more than honor but his doggedly courageous spirit refused to admit defeat. He rejoiced in Morton's achievement, but he had come into the North to find Franklin or, failing that, to solve the mystery of his disappearance, and this he intended to do.

Because their ship was by now hopelessly ice-jammed, some of Kane's men felt that further effort was useless. Kane had himself abandoned hope of saving the "Advance," and he was too generous not to give his men any chance for a safe return which they might feel they had. "Any of the crew that differ with me," he agreed, "are free to try the southward journey if you wish." Nine of his crew determined to make the attempt rather than face the horrors of another winter. Fully equipped and taking with them their share of the scanty store of provisions, they set out to fight their way to civilization. The eight remaining men banked snow about the ship and awaited their fate. Kane, opening friendly negotiations with the Eskimos, succeeded in purchasing sufficient walrus and seal meat to keep his crew alive.

Two months passed. In the third, the men who had deserted the ship came straggling back, covered with rime and snow and fainting with hunger. They had journeyed

more than 350 miles, and their last run from the bay near Etah, about seventy miles in a straight line, had been through the hummocks at the appalling temperature of 50 degrees below zero. One by one they came in. "Poor fellows!" exclaimed Kane. "As they threw open their Eskimo garments by the stove, how they relished the scanty luxuries which we had to offer them! Even the salt pork which our scurvy forbade the rest of us to touch —how they relished it all! For more than two months they had lived on frozen seal and walrus meat."

By little less than a miracle Kane and his heroic men survived the winter. Scurvy gained on them until there were only two men who were able to care for the others. Hans, the Eskimo hunter, and Kane himself tended the sick, kept up the fires, and did the cooking and the scullery work. Every hour of his scanty time for rest Kane awoke to record the readings of his instruments, that science might not fail to profit from his sufferings. If he should give way his men would perish. His indomitable spirit and heroic example alone nourished their feeble hold on life.

Summer came at last, and the men seized their last opportunity to leave the dreary prison. Boats were loaded and, bidding farewell to the "Advance," they began their slow and tedious march to the open sea. For nearly a month they struggled feebly onward. At length they found open water and embarked in their fragile boats, so battered and leaky that they needed constant bailing to keep them afloat. The strength of the explorers had decreased to an alarming degree. They breathed with difficulty; their feet were so swollen that the men were obliged to cut open their canvas boots; they were unable to sleep.

At one moment during that painful voyage their fate hung upon the chance of a single shot. All food was gone. In the distance a seal was sunning himself upon the ice at the edge of his hole. "Trembling with anxiety," Kane recorded later, "we prepared to crawl down upon him. Petersen, with a large English rifle, was stationed in the bow, and stockings were drawn over the oars as mufflers. As we neared the animal, our excitement became so intense that the men could hardly keep stroke. He was not asleep, for he reared his head when we were almost within rifle shot. To this day I can remember the hard, careworn, almost despairing expression of the men's thin faces as they saw him move. Their lives depended on his capture.

"I depressed my hand nervously as a signal for Petersen to fire. McGarry hung upon his oar, and the boat, slowly but noiselessly surging ahead, seemed to me within range. Looking at Petersen, I saw that the poor fellow was paralyzed with anxiety, trying vainly to obtain a rest for the gun against the cutwater of the boat. The seal rose on his fore flippers, gazed at us for a moment with frightened curiosity, and coiled himself for a plunge. . . .

"The crack of the rifle! He relaxed his long length on the ice, and, at the very brink of the water, his head fell helpless to one side. No discipline could control the men. With a wild yell, each vociferating according to his own impulse, they urged their boats upon the floes. A crowd of hands seized the seal and bore him to safer ice. The men seemed half crazy. I had not realized how much we were reduced to absolute famine. They ran over the floe, crying and laughing and brandishing their knives. It was not five minutes before every man was sucking his bloody fingers, or mouthing long strips of raw blubber. Not an ounce of the seal was lost."

After eighty-one days of exposure on ice and sea to the open arctic blasts the party was picked up by a Danish boat and taken to Upernivik, where they learned that a relief expedition had been sent out by the United States Government under the command of Lieutenant Hartstene, accompanied by Doctor Kane's brother. They reached New York October 11, 1855, after an absence of thirty months. Honors were heaped upon them. Two years later Kane died in Habana as a result of the exposure he had suffered in the Arctic. He and his men had charted nearly a thousand miles of new seacoast and had reached the Farthest North.

The Franklin mystery remained unsolved. As the years passed without result the English Government withdrew assistance, considering the great navigator's fate an insoluble enigma. Lady Franklin alone never slackened in her efforts to encourage the continuation of the effort, although she had already spent practically her entire fortune in the fruitless search.

The whole world had abandoned hope and turned to other interests, when a message came out of the Arctic from Dr. John Rae of the Hudson's Bay Company. He reported that, in the spring of 1854, while exploring in the vicinity of the Boothian Isthmus, the uppermost tip of America, he had become friendly with members of a tribe of Eskimos. They had told him that, some four or five years before, fellow tribesmen had seen a party of white men in distress on King William Island and that the white men had come from a ship that had been crushed in the ice. The Eskimos had exhibited certain articles which Doctor Rae recognized as belonging to the Franklin expedition.

"We can lead you to a place," the Eskimos had said, "where there are corpses of thirty persons, and graves.

Five dead bodies are on an island near it, a long day's journey to the northwest of a large stream" (which can be no other than Back's Great Fish River).

Some of the bodies, so Doctor Rae's story ran, were in a tent, or tents; others were under the boat, which had been turned over to form a shelter; and some lay scattered about in different directions. Of those found on the island it was supposed that one was that of an officer, as he had a telescope strapped over his shoulders and a double-barreled gun lay beneath him. From the mutilated state of the bodies and the contents of the kettles, it was evident that the half-crazed explorers had been driven to the dread alternative of cannibalism as a means of sustaining life. A few of the unfortunate men must have survived until the return of the wild fowl, about the end of May, just a few weeks before the rescue party arrived, as shots had been heard and fresh bones and feathers of geese were noticed near the scene of the tragic event.

James Anderson, of the Hudson's Bay Company, undertook a further search. Among the Eskimo tribesmen he found articles, such as tools and rope, some of which bore the name of the "Terror." Little doubt of the fate of the men now remained, and less hope.

Lady Franklin resolved to spend the last remaining part of her fortune. This, together with money which was contributed by her friends, was used to fit out a small screw steamer, the "Fox." Captain (afterward Sir) Francis Leopold McClintock, famous for his arctic voyages, volunteered to serve in command without pay, as did also Lieutenant (afterward Captain) Hobson. Sailing from England in 1857 in one last forlorn hope, they penetrated into Melville Bay, where they were stopped by the ice and imprisoned for eight dreary months, drifting back-

wards over their course about 1,200 miles. They finally managed to navigate Prince Regent Inlet, and, after five unsuccessful attempts to penetrate farther, took up winter quarters at Port Kennedy. From Port Kennedy, with the help of the Eskimos, they pursued their search overland by sledge journeys.

The document in which Captain McClintock records his discoveries is one of the most famous in all arctic exploration. The log book, written with his own hand in the midst of arctic perils, is in the archives of the British admiralty.

"To avoid snow blindness," it records, "we commenced night marching. Crossing over from Maltry Island toward the King William shore, we continued our march southward until midnight, when we had the good fortune to arrive at an inhabited snow village. We found here ten or twelve huts, and thirty or forty natives of King William Island; I do not think any of them had ever seen white people before, but they evidently knew us to be friends. We halted at a little distance, and pitched our tent, the better to secure small articles from being stolen while we bartered with them.

"I purchased from them six pieces of silver plate *bearing the crests or initials of Franklin, Crozier, Fairholme, and MacDonald!* They also sold us bows and arrows of English woods, uniform and other buttons, and offered us a heavy sledge made of two short pieces of curved wood which no mere boat could have furnished them with, but, this of course, we could not take away. The silver spoons and forks were readily sold for four needles each."

With the Franklin relics in his possession, Captain McClintock purchased from the natives some seal's flesh, blubber, frozen venison, and dried and frozen salmon, and sold them some puppies. "They told us," the log continues,

"it was five days' journey to the wreck; one day up the inlet still in sight and four days overland. This would carry them to the western coast of King William Island. They added that but little now remained of the wreck, their countrymen having carried almost everything away."

In answer to an inquiry, they volunteered the information that the wreck gave rise to some laughter among them. They spoke to each other about fire, from which Peterson, of McClintock's party, thought that they had burned the masts to the deck to get them down. They admitted that there had been many books, but that all had long ago been destroyed by the weather. The ship, they said, had been forced on the shore by the ice in the fall of the year. She had not been visited during the past winter. An old woman and a boy claimed that they were the last to visit the wreck.

Peterson questioned the woman closely, and she seemed anxious to give all the information in her power. She said that many of the white men had dropped by the way as they went to the Great River; that some had been buried and some had not. The natives had not themselves witnessed this, but had discovered the bodies during the following winter.

Armed with this information, McClintock and his men marched on to the shore along which the retreating crews must have marched. It was shortly after midnight, when slowly walking along a gravel ridge near the beach, which the wind kept partially bare of snow, that McClintock beheld the stark spectacle. A human skeleton, partly exposed, with here and there a few fragments of clothing, appeared ghastly through the snow. The bleached skeleton was lying upon its face. The limbs and smaller bones had been gnawed away by small animals.

The pathetic story was revealed in all its horror. The commander and his men stood with bowed heads. Removing the snow, they gathered up every scrap of clothing. A pocketbook afforded strong grounds for hope that some information might be obtained respecting the unfortunate owner and the calamitous march of the lost crews, but both pocketbook and contents were frozen hard.

"The substance of that which we gleaned upon the spot may thus be summed up," records McClintock. "This victim was a young man slightly built . . . the dress appeared to be that of a steward or an officer's servant, the loose bowknot in which his neck handkerchief was tied not being used by seamen or officers . . . the blue jacket with slashed sleeves and braided edges, and the pilot-cloth greatcoat with plain covered buttons. We found, also, a clothes brush near, and a horn pocket comb. This poor man seems to have selected the bare ridge top . . . to have fallen upon his face in the position in which we found him. It was a melancholy truth that the old woman spoke when she said: 'They fell down and died as they walked along.'"

The searching party pursued the melancholy trail. At Cape Herschel a cairn was found which had been all but demolished by the natives. Greatly to McClintock's disappointment, no records were discovered, but a revelation awaited the searchers about twelve miles farther on. At Point Victory, on the northwest coast of King William Land, they stumbled upon a second small cairn. In it they found a piece of paper. This paper was the printed form usually supplied to discovery ships to be inclosed in a bottle and thrown overboard at sea in order to ascertain the set of currents, blanks being left for the date and the



THIS FEROCIOUS BEAR KILLED THREE OF KANE'S BEST DOGS

Before the men killed him, wise and cunning, he stole the bait from the traps He measured 7 feet 8 inches, and weighed 700 pounds

NO MEN EVER LIVED THROUGH GREATER HORRORS

They lived, although broken in health, to return to New York, where their welcome made a demonstration never before equalled in America (1855)

WITHIN SEVEN DEGREES OF THE NORTH POLE

Stricken by hunger, with incredible exertions, they penetrated within seven degrees of the north pole. Only the knowledge of certain death drove them back. Sketch by Kane



ABANDONING THEIR SHIPS IN THE ARCTIC SEAS

Kane and his crew dragged their heavy boats across the drifting floes or rowed them through storm-tossed patches of open water, until finally rescued by a Danish blubber boat (August, 1855)

position of the ship. Printed on the blank in six languages was the routine request that any person finding it should forward it to the Secretary of the Admiralty. McClintock and his men examined the paper eagerly. On it, in the handwriting of Lieutenant Graham Gore of the Franklin expedition, was a brief report:

> 28th of May 1847; H M. ships "Erebus" and "Terror" wintered in the ice in lat. 70 degrees 15 minutes North; long. 98 degrees, 23 minutes West.
>
> Having wintered in 1846–7, at Beechey Island, after having ascended the Wellington Channel to Latitude 77 degrees and returned by the West side of Cornwall Island.
>
> Sir John Franklin commanding the expedition
>
> All well Party consisting of 2 officers and 6 men left the ships on Monday, 24th of May, 1847.
>
> G. M. Gore, Lieut.
> Chas. F. des Voeux, Mate

Up to May 28, 1847, the expedition had evidently met with success. McClintock later learned from the whalers in Melville Bay that the expedition passed on to Lancaster Sound and entered Wellington Channel, sailing up that strait for a distance of 150 miles. Whether Franklin intended to pursue this northern course and was stopped only by the ice in lat. 77° N., or whether he purposely relinquished a route which seemed to lead away from the known seas off the coast of America, was a matter of conjecture. Gore's report stated that the ships returned southward from lat. 77° N., which is at the head of Wellington Channel, and reentered Barrow Strait by a new channel between Bathurst and Cornwallis islands. Whatever the reason for turning back, when Lieutenant Gore left the ships on Monday, May 24, 1847, for his sledge journey of exploration, those on board the "Erebus" and the "Terror" were "all well," and the gallant Franklin was still in command.

Death waited on victory only, for around the margin of the paper upon which Lieutenant Gore wrote his words of promise, another hand had subsequently written this tragic message:

> April 25, 1848—H.M. Ships "Terror" and "Erebus" were deserted on 22nd April, five leagues N.N.W. of this, having been beset since 12th September, 1846. The officers and crews, consisting of 105 souls, under the command of Captain F. R. M. Crozier, landed in lat. 69° 37′ 42″ N., long 98° 41′ W. . . . Sir John Franklin died on the 11th June, 1847; and the total loss by death in the expedition has been to this date 9 officers and 15 men.
>
> (signed) F. R M. Crozier, Captain
> James Fitzjames, Captain, "Erebus"
>
> We start on tomorrow, 26th April, 1848, for Back's Fish River.

In the short space of twelve months how mournful had become the history of Franklin's expedition; how changed from the cheerful "All well" of Graham Gore! Within a month after Lieutenant Gore had placed the record on Point Victory, Franklin was dead. In less than a year, Captain Crozier, upon whom the command had devolved at King William Land, was endeavoring to save 105 starving men from a terrible death by retreating to Hudson Bay territories up the Back or Great Fish River.

With this sad relic of lost hopes in his possession, McClintock continued his search for every vestige of evidence. His log tells of the next tragic discovery. "We encamped alongside a boat, another melancholy relic containing a vast quantity of tattered clothing. And there was that in the boat which transfixed us with awe. It was portions of two human skeletons. One was that of a slight young person; the other of a large, strongly made middle-aged man. The former was found in the bow of the boat in a much disturbed state. Large and powerful animals, probably wolves, had destroyed much of this skeleton,

which may have been that of an officer. The other skeleton was in a much more perfect state and was enveloped with clothes and furs. It lay across the boat under the after-thwart. Close beside it were found five watches; and there were two double-barreled guns, one barrel in each loaded and cocked, standing muzzle-upward against the boat's side.

"The position of the abandoned boat was about fifty miles as a sledge would travel from Point Victory, and therefore sixty-five miles from the position of the ships and about one hundred fifty miles from Montreal Island. After leaving the boat we followed an irregular coast line to the north and northwest up to a very prominent cape named Point Franklin by Sir James Ross, which name it still retains."

The melancholy search was over. Captain McClintock, with his pitiful fragments, returned sadly to his ship. The "Fox," now a funeral ship, made a difficult passage back to England, her engineer dying on the voyage, and sailed mournfully into Portsmouth Harbor on September 24, 1859. The articles which Captain McClintock brought home were deposited by the admiralty in the United Service Institution, simple and touching mementoes of those heroic men who perished in the path of duty. The Royal Geographical Society awarded the Founder's Gold Medal to Lady Franklin, affirming that "the Franklin expedition firmly established the existence of the Northwest Passage."

A monument erected in Waterloo Place bears the inscription:

FRANKLIN
TO THE GREAT NAVIGATOR
AND HIS BRAVE COMPANIONS
WHO SACRIFICED THEIR LIVES
COMPLETING THE DISCOVERY OF
THE NORTHWEST PASSAGE
A D. 1847–48
ERECTED BY THE UNANIMOUS VOTE OF PARLIAMENT

So, Franklin's fate was known in all its grim irony. Dying, he had not known that he had held within his grasp the secret for which he sought. He had not known that to him and to the men who went to death with him would be given credit for "completing the discovery of the Northwest Passage." He had not known that among the hundreds who would come to his rescue would be one who would sail from the east to the west, finding on a mission of mercy that passage to the discovery of which so many hundreds besides himself had given their lives.

While in search for Sir John, on a commission from the English Government in 1851, Sir Robert J. McClure and his officers had passed through the strait named after McClure and had reached Barrow Strait, thus completing the discovery which had lured explorers for nearly four centuries.

McClure, like Franklin, was unable to complete the passage which they had discovered. Franklin lost his life; McClure lost his ship, nipped in the ice, and worked his way back by land. It remained for another explorer, who was to gain world fame, to make the first complete voyage through the Northwest Passage.

CHAPTER XI

ARCTIC MADNESS AND THE TERRORS OF THE LONG NIGHT

THE drive for the north pole gained momentum. Strong characters from many nations entered the combat. Not even the absolute proof of the tragic fate of Sir John Franklin which Captain McClintock brought down from the North in 1859 could bring that story to its end. Franklin's tragedy, holding upon the imaginations of men, had grown to the proportions of legend. After McClintock's return the mystery continued to spur arctic exploration.

"Arctic madness," they called it. Dr. Isaac Hayes, who had served as surgeon on Kane's last expedition, had learned the fascination of the North in the earlier search for the ill-fated company. The knowledge that Franklin was dead had no bearing upon Hayes's eagerness for exploration. But there were other men, like Charles Francis Hall, who refused obstinately to believe the proofs of Franklin's fate. In 1860 Hall set out to answer what he thought was a divine call that he find Franklin's men. Two months later Hayes began his scientific investigations in the North for which the search for the Englishman had trained him.

On July 8, 1860, Doctor Hayes sailed from Boston Harbor on the ship "United States." His interest in returning to the North was purely scientific. He hoped to survey the northern coasts of Greenland and to make whatever explorations he found practical in the direction

of the north pole. After many narrow escapes in the ice, the "United States" made harbor for the winter at Port Foulke, about twenty miles south of the spot where Kane had wintered before him. Starting from this harbor in April, 1861, with one companion, Hayes pushed northward by dog sledge, to 81° 35′ on the land. "Our further progress," he reported, "was stopped by rotten ice and cracks." At 81° 35′ he planted his flag in token of discovery and left a record in a cairn.

The "United States" had been by now too seriously damaged to continue northward. Hayes therefore returned to Boston Harbor and landed to find the country in the throes of the Civil War. "I felt," he declared, "like a stranger in a strange land, and yet every object which I passed was familiar. Friends, country, everything seemed swallowed up in some vast calamity, and doubtful and irresolute, I found my way back on board my ship through thick, dull fog."

Charles Francis Hall was perhaps the most extraordinary personality who ever undertook an arctic exploration. A Jack-of-all-trades—a blacksmith, a journalist, a printer, and an engraver—he was fascinated by the expeditions of Kane and by the rescue parties that had joined in the search for Sir John Franklin. Religious to the point of fanaticism, he "heard the call" to go to the Arctic, and for nine years studied every book and chart which came within his reach or which his scanty means could procure.

The news of McClintock's discoveries induced in him a "premonition" that some of Franklin's men still lived among the Eskimos and might be rescued. He determined to test his theory at all cost. Unable to procure a ship, he laid his plans to go alone to the shores of Frobisher Bay and search for Franklin's men among the natives of that

region. He finally managed to raise $975, which he spent in the purchase of a meager outfit, and, securing a gratuitous passage on the "George Henry," a whaling ship under the command of Captain S. O. Buddington, he landed at Holsteinborg in Greenland in the summer of 1860.

His simple soul was satisfied. "This is the grandeur of God's creation," he exclaimed. "His storms at sea are but mighty evidence of His power." Upon sighting his first whale, he entered into reverie: "It is a grand sight to see a fish a hundred feet long propelling itself quietly through the water as though it were a humble mountain trout." Joy flooded his being at the sight of his first iceberg: "Magnificence and splendour at once . . . . I stood in the presence of God's work. Its fashioning was that of the Great Architect! He who has builded such monuments is God and there can be no other!" "I love the snows," he cried, "the ices, the icebergs, the fauna and flora of the North! I love the circling sun, the long day, the arctic night, when the soul can commune with God in silent and reverential awe. I am on a mission of love . . . . Thus feeling, I am strong of heart, full of faith, ready to do or die in the cause I have espoused."

Even the food of the native Eskimos had no repulsion for a man whose heart and mind were so deeply touched. The raw carcass of a seal, dripping with blood, the pieces licked clean of hair by the tongue of a native woman, was to him "ambrosia." He ate with pleasure the frozen entrails of the seal and asked for more. He remarks in his diary: "Today I have had a feast for which I have long been longing. The flesh of walrus killed last fall, decayed and stinking, but most delicious to the taste nevertheless."

In Greenland, in the natural grandeur that he loved, he lived for two years with the Eskimos, studying their

customs and their language and constantly searching for news of survivors of the Franklin expedition. His talks with the natives afforded him a clue which led him to the discovery of relics of the mining colony settled in Greenland by Frobisher nearly three hundred years before. With these and two Eskimos, Joe and his wife Hannah, who remained with him to the day of his death, Hall returned to the United States, like Hayes, to find his country plunged in the horrors of civil war. He would have been happy to take the Frobisher relics to England, but since he was in dire poverty he sent them instead to the British Government. Failing in an attempt to raise funds by lecturing, he wrote a book around his experiences, but public attention was too deeply absorbed in the war to pay more than passing attention to "the crazy fanatic." "Arctic mad," men called him.

Under discouragement and ridicule he still persisted and, aided by Grinnell and others, set out again in 1864, finding passage once more with the whalers. He took Joe and Hannah with him and landed on Depot Island in Hudson Bay.

Living among the natives, he made the acquaintance of an Eskimo named In-nook-poo-zhe-jook who was a "walking history of the fate of the Franklin expedition," and forced him and others to guide him to the desolate King William Land. The guides trembled with fear, claiming that savages lived there who would kill them, but Hall forced them on, and at last his ambition was realized. He found himself on the ground where Franklin had come to his tragic end. The arctic storms had swallowed the historic ship, but, living among the Eskimos, he gathered the "holy relics." The explorer found that the natives had dug open the graves of Franklin's

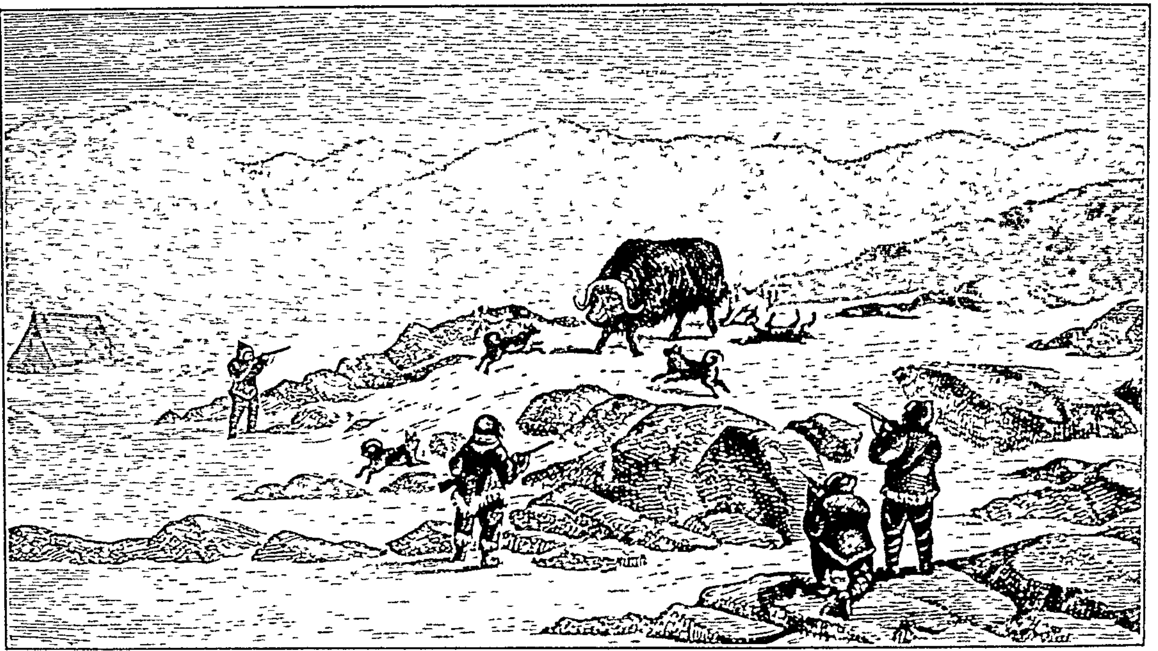
ARCTIC FUNERAL OF CAPTAIN HALL—HE DIED INSANE

Two weeks after severe hardships on the sledge journey on which he established a farthest north record, Hall became insane from the effects of his terrible struggle with the elements and died November 7, 1871.



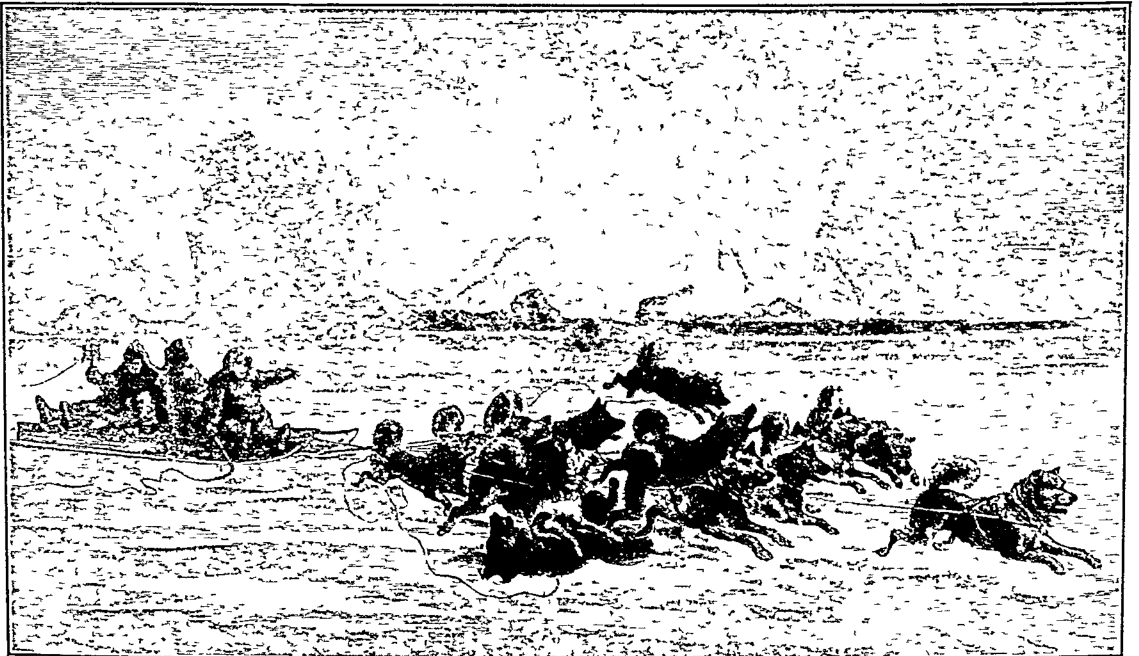
RAVENOUS WITH HUNGER

Hall's dogs engaged in a fierce and bloody battle Some of the most valuable dogs were killed and eaten by their mates



WHEN MUTINY WAS THREATENED BY THE MEN

Starvation drove Hall's men to mutiny He sent out a hunting party, which after three days' search found and killed this musk ox, weighing 369 pounds They brought it into camp on sledges (1873).



HALL BRAVED ARCTIC PERILS ALONE

Hall lived alone among the Eskimos for two years He was seeking clues to the survivors of Franklin's ill-fated crew, 105 of which remained unaccounted for at that time.

comrades and robbed the dead, leaving them exposed to the ravages of wild beasts. The remains of five men that had not been buried he found on Todd's Island where, after the savages had robbed them of every article that could be turned to their use, the dogs had been allowed to finish the disgusting work.

Natives from all over the region possessed the belongings of the dead men. Hall gathered many of the relics from them. He secured a piece of the boat, a sledge runner, part of the mast of the Northwest Passage ship, a chronometer box, a mahogany writing desk elaborately finished and bound in brass, silver plate bearing crests and initials, parts of watches and knives, and one entire skeleton which was identified by the plug of a tooth as the remains of Lieutenant Le Vescomte.

In his search he employed five white men from whaling boats, but his difficulties with them were greater than those he had had with the Eskimos. They fought over their pay and planned to mutiny and kill Hall. Single-handed he quelled the mutiny and shot the leader, who died of his wounds. Other whalers helped Hall in his explorations. Whaling vessels with kindly disposed captains supplied him from time to time with provisions and other necessities during the five years he remained in the North charting the west side of Melville Peninsula and Fury and Hecla Strait. This work was of great geographic and maritime value. On a September day in 1869 the whaler "Ansel Gibbs" sailed into the old whaling harbor at New Bedford, Massachusetts. On board stood Hall with his two Eskimos, who called him "father." He was home again after traveling over four thousand miles by dog sled in the Arctic.

Hall now was kindled by a new flame. "I am going to the north pole," he proclaimed. "I must prepare at

once for my expedition. Night and day, day and night, weeks, months, and years, find my heart and purposes fixed, without a shadow of wavering, on making that voyage. May heaven spare my life to perform it!"

In Washington President Grant was impressed by the appeal of Hall. With presidential approval Charles Sumner, the great abolitionist, in 1870 introduced a resolution to provide $100,000 to Hall for his project. The Senate was equally divided on the proposal, and Vice President Colfax cast his deciding vote in the affirmative. The amount was cut to $50,000 in the House of Representatives. This was the first and only expedition authorized by Congress. The Secretary of the Navy turned over to him the United States steamer "Periwinkle," which Hall rechristened the "Polaris," thus defying the ancient superstition of the sea which ascribes disaster to those ships whose names are changed. She was thoroughly rebuilt and outfitted at an expense of $90,000 more.

"If Congress had failed to grant the necessary funds," declared Hall, "I would again have dared the Arctic and started for the pole alone with such Eskimos as I might be able to persuade to go with me."

As the "Polaris" sailed out of New London harbor on July 3, 1871, Hall stood on the deck in full command. On board were Buddington, his old whaler friend, as sailing master, Dr. Emil Bessels, in charge of scientific work, and twenty-four others whom Hall had carefully selected from a list of volunteers. He had, also, as second mate, William Morton, one of the survivors of the Kane expedition. With him, too, was the historic flag which had gone with Doctor Kane when he broke the world record of farthest north by land and with Lieutenant Wilkes when he discovered the Antarctic Continent.

Hall proved himself a determined and uncompromising commander. He ruled with an iron hand. The language of the sea, with its picturesque profanity, aroused his ire. "The name of God shall not be taken in vain on this ship," he ordered. "We shall tolerate no vile tongue. You shall be a law-abiding, God-fearing crew or into the irons you go!"

The "Polaris" encountered heavy ice at the entrance to Wolstenholme Sound. Hall crowded on speed and pushed through. Heavy fog hung about the ship, but he moved on without an hour's delay. On he went, northward through Kane Basin, through Kennedy Channel, through Hall Basin, bucking ice and storms at every mile, until he forged through Robeson Channel, which he discovered, into the polar sea. When he was stopped at last on August 30, 1871, by an ice barrier that stretched in solid masses unbroken as far as eye could see, he stood at 82° 11′ N., a record which only one ship had ever beaten. Seeking safety for the winter he anchored on the northern coast of Greenland at what he called Thank God Harbor. Hall in his own log claimed that he came north in his ship to 82° 29′, which, he asserted was "the highest yet reached by man," disregarding for reasons of his own the record of of Parry at 82° 45′ N.

Without an instant's delay, Hall made ready for a sledge journey before the darkness of winter should make it impossible. With three men and a heavy sledge he started out to discover a practical route for his spring journey toward the north pole. Also he hoped to find "fresh meat from a herd of musk oxen farther north." Making his way along the shore, surveying and charting it as he went, he named the outstanding points of his new discoveries Cape Brevoort, after a personal friend and a

backer of arctic explorers, and Sumner Headland, after the senator who had supported his cause in Congress. From Cape Brevoort, he could see land extending for seventy miles to the north, and therefore entered the claim in his diary: "thus making land we discover as far as lat. 83° 5′ N.," a record he could not support, however, as he had never stood on the ground.

Now began the tragedy. Hall found his way barred both by impassable crevasses on land and by the moving ice on the sea. Also he felt a decline in that inspired strength of his. "I confess great disappointment," he wrote, "at not being able to run at the head of my dogs, to a general lack of vigour that grows on me as the journey lengthens." He was forced to turn back.

The party reached the ship safely. Hall seemed elated and then depressed. He had been but half an hour on board when suddenly he fell to the deck. His men rushed to his side; he waved them away. Strange mutterings came from his lips.

"You are trying to poison me!" he shouted wildly when his men offered him food. "I will take nothing except from the hands of Joe and Hannah. I can trust them."

Madness took possession of him, arctic madness. His mind filled with weird hallucinations of poisoning and attempts to kill him. Subconscious fears rose now out of the past, out of the lonely days he had spent with the savages who had desecrated the graves of Franklin's men. Then he seemed to come to himself again. For several days he was his normal self once more.

"I am well again," he insisted. "Give me meat. When I have heart attacks I always eat one or two pounds of raw beef."

The ship's surgeon warned him of the danger of apoplexy but Hall persisted. A second stroke brought him suddenly to unconsciousness. They could not rouse him. The next day he died.

The men sent on shore to dig the grave found the ground frozen so hard that it was only with the greatest labor that they were able to scrape out a shallow hole, twenty-six inches deep, to protect the body from the ravages of the bears. The arctic night had set in and the melancholy work was done by lantern light. The coffin, covered with the American flag, was placed on a sledge. The gloomy men, dressed in the skins of bear and seal and reindeer, set out in procession with Captain Tyson, assistant navigation officer, leading the way. Joe and Hannah wept as they followed the cortège. There was a weird sort of light in the air, partly boreal, partly electric, through which the pale stars shone as Hall's comrades laid him in his grave of ice and snow.

"Thus," records Tyson, "end poor Hall's ambitious projects; thus stilled the effervescing enthusiasm of as ardent a nature as I ever knew. Wise he might not always have been, but his soul was in his work, and had he lived until spring I think he would have gone as far as mortal man could go to accomplish his mission. But with his death I fear that all hope of further progress must be abandoned."

Tyson was right. The death of Captain Hall proved fatal to the object of the expedition, the attainment of the north pole. Sergeant Meyer, however, carried the flag on foot to Repulse harbor 82° 11′ N.

On August 11, 1872, Captain Buddington decided to weigh anchor and start for home. But fortune was against him; his ship was caught in the ice and drifted helplessly

with the floe in constant danger of destruction. For sixty anxious days they drifted onward until they encountered a heavy snow storm with a driving wind of high velocity. All day the gale increased. Icebergs jammed the ship against the floe. She shook and trembled. She was raised bodily and thrown over on her port side. Her timbers cracked with a loud report, especially about the stern. The sides seemed to be breaking in. One of the firemen, hurrying on deck, reported that a piece of ice had been driven through the sides.

Escape from destruction seemed impossible. The darkness of the night and the grinding of the ice added to the horror of the situation. The provisions and stores were ordered thrown upon the ice. Boxes, barrels, cans were flung over the side with extraordinary rapidity. Men performed gigantic feats of strength, tossing with apparent ease, in the excitement of the moment, boxes which at other times they would not have attempted to lift. The Eskimo women and children and some of the men of the expedition took refuge on the ice.

The crowning horror came with dramatic suddenness. Without warning the ice suddenly shifted its pressure. A rift opened before the boat. Driven by the force of the storm, the ship's cable parted and, with fourteen still on board, she drifted free. In the blackness of the night the ship disappeared like a phantom. The party was divided forever. The men left on the ship heard a voice rise in despair from the ice, "Good-by, 'Polaris'!"

Nineteen persons, including a tiny baby, were left homeless on the ice. Fourteen were left on the ship. The men on the "Polaris" struggled with the vigor of desperation. After an hour of superhuman exertions, the steam pumps were started, the fire crammed with seal

blubber, and the worst of their danger was over. A few days later the ship was beached near Lifeboat Cove and, in a house built of the timbers of the ship, the men settled down for another long winter. In the spring, two boats were constructed from the lumber of the abandoned ship, and, after a perilous journey of two hundred miles in these hastily built open boats, the party were rescued by a Scotch whaling vessel which picked them up near Cape York.

Far away, the other nineteen from the "Polaris," including Captain Tyson, were drifting at sea on the ice, going none of them knew where. Men, women, and children lay down on the drifting berg and sought what rest they could find for the night. They faced the winter with fourteen cans of pemmican, eleven bags of bread, one can of dried apples, and fourteen hams. And there were nineteen mouths to be fed.

Upon the drifting berg, which proved to be about five miles in circumference, they built snow houses. The Eskimos succeeded, from time to time, in killing a seal. The effects of exposure and hunger began to show. The children cried for food; some of the men trembled when they tried to walk. Their hunger became so ravenous that the seal meat was eaten uncooked, with the skin and hair still on it.

Christmas came as they drifted on the floe at sea. Captain Tyson wrote: "The last of our present supply of seal's blood! So ends the Christmas feast!" For dinner on New Year's Day they had about two feet of frozen entrails and a little blubber. For five months and a half, the twelve men, two women, and five children drifted 1,300 miles. Then at last after 168 days of frightful suffering they were mercifully rescued by a sealer, the "Tigress,"

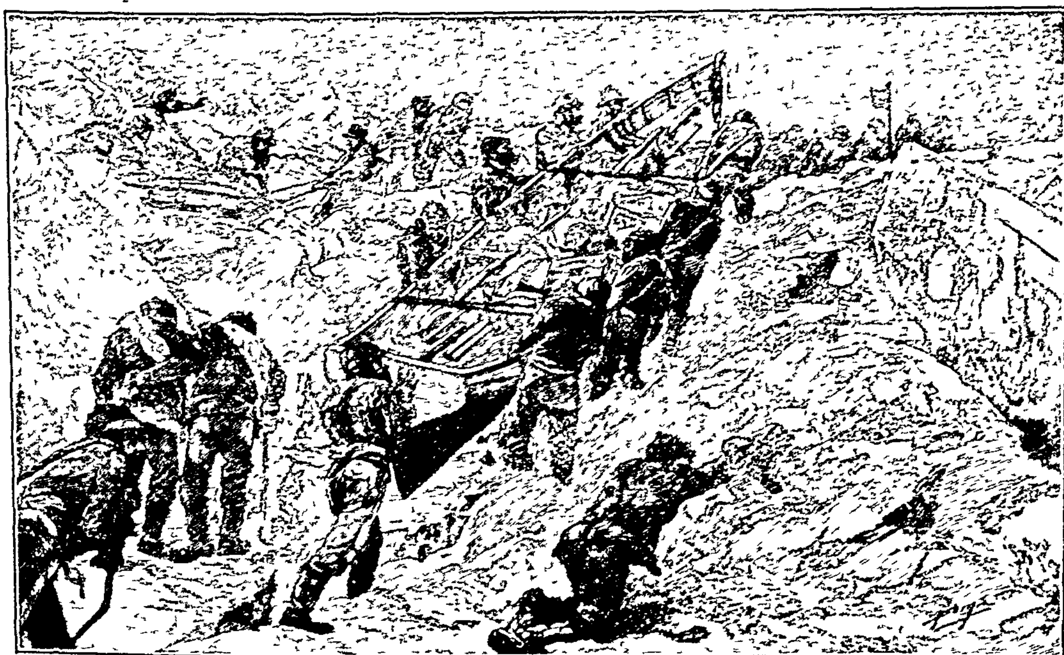
commanded by Captain Bartlett of Newfoundland, a relative of Captain Bob Bartlett, the famous skipper for Peary. Not a single life had been lost.

At her home in America Hall's widow was eager to hear the news from her husband. She waited, expecting the joyous announcement that he had reached the top of the world. Instead, the straggling refugees, reaching home, told her of his death. Only the purchase from her of Hall's records and journals by the government kept her from want during the last years of her life.



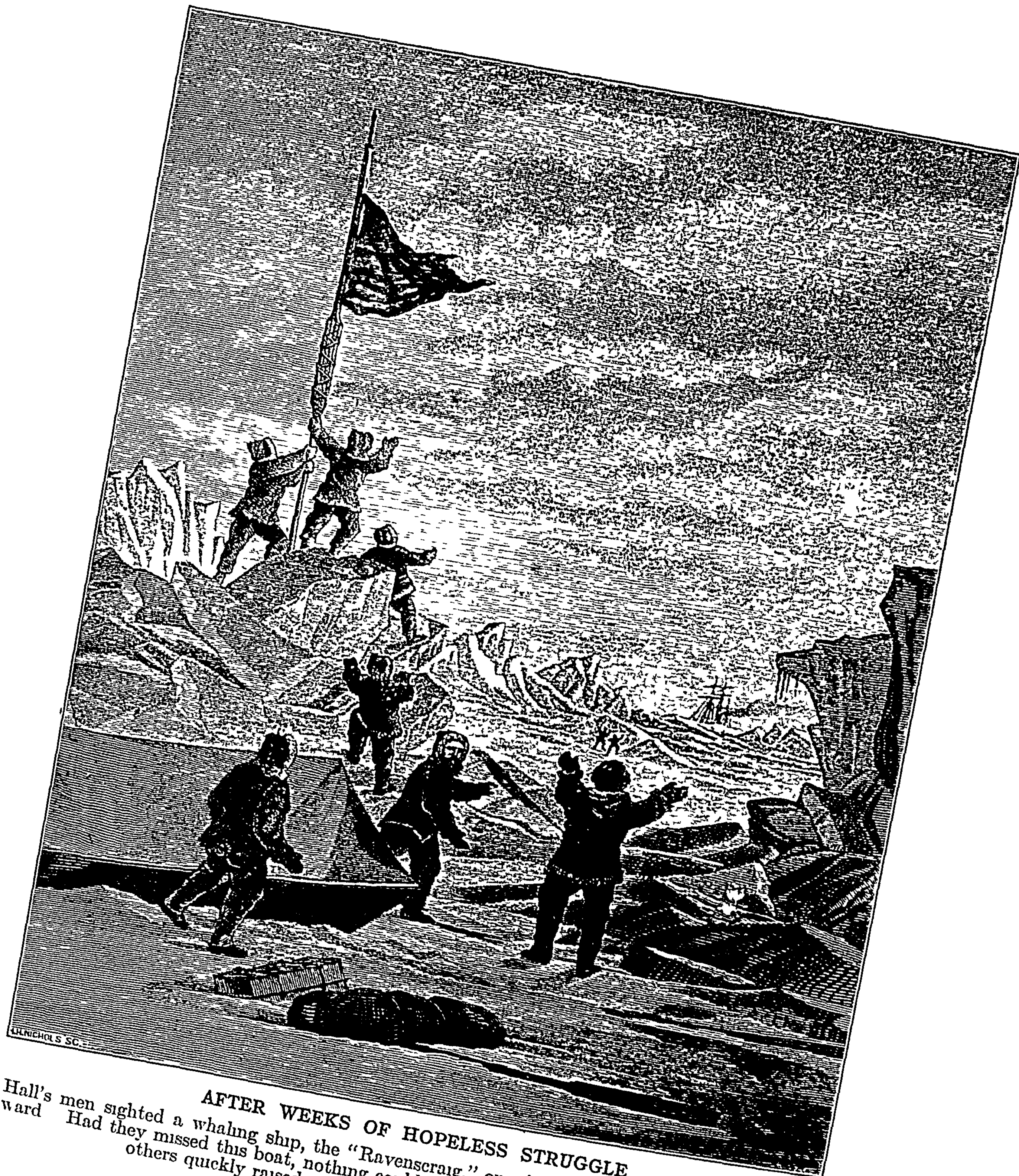
AWAH-TAH—HIS BACK MARKED WITH SCARS

Hall's Eskimo hunter returning with an enormous bear which he had stalked all night in the bitter cold. Eating this fresh meat, the men recovered somewhat from the worst symptoms of scurvy



FORCED TO ABANDON THEIR SHIP, THE "POLARIS"

Two feet of water already covered her deck when she was abandoned June, 1873 The men were forced to set out, dragging their boats, in forlorn hope of reaching Cape York



AFTER WEEKS OF HOPELESS STRUGGLE

Hall's men sighted a whaling ship, the "Ravenscraig," on which they obtained passage homeward. Had they missed this boat, nothing could have saved them. Some wept with joy while others quickly raised a flag, mounted on two oars lashed together.

CHAPTER XII

THE MEN WHO CAME BACK FROM THE DEAD

BY THE middle of the nineteenth century, practically every large nation in Europe was involved in the exploration of the North. Prior to that time, England, following up her interests in Canada, had, generally speaking, monopolized the Far North, but the search for Franklin, with its attendant horrors and tragic disclosures, had drawn the speculative attention of the entire Western world. The coast line, for the most part, had been mapped; it was thought that all habitable land had been discovered and claimed; the exact position of the north magnetic pole had been located; the course of the Northwest Passage had been definitely determined; but no one had yet reached the north pole.

The record stood with England at 82° 45′, where Parry had set it on sea, and with America at 82° 11′, where Kane had set it on land. In addition, love of adventure and excitement were every day finding a more and more solid foundation in scientific curiosity, and each year saw one, two, or three expeditions of hardy men spurred by wanderlust and of scientists of repute turning northward to find the pole and to add to the knowledge of the world. Beginning in 1867, Germany, Sweden, Austria, Russia, Italy, and the Scandinavian countries one after the other succumbed to the fascination of the race, and England and the United States found themselves hard pressed to maintain their precedence.

America, in 1867, shaking off the shroud of the Civil War, reëntered arctic battle grounds with the weather-beaten old whaling captain Thomas Long, who fought his way into the polar ocean beyond Bering Strait and smashed all theories of the arctic plateau by discovering a vast mountainous country. In 1869 the Scandinavians, Carlsen and Palliser, with stout-timbered ships crossed the hitherto inaccessible Sea of Kara above Russia and Siberia to the mouth of the great Ob River in Siberia; while a year later the great Captain Johannesen circumnavigated for the first time the archipelago of Novaya Zemlya.

Germany, in 1868, took up the gantlet and sent out her first polar expedition. This expedition was organized by the noted scientist, Dr. A. Petermann. Under the command of Captain Karl Koldewey, in the ship "Greenland," its frontier line was established on the coast of Spitzbergen at latitude 81° 5′. The German populace, for the first time really intrigued by the lure of the Arctic, raised a cry of "On to the north pole!"—a cry which, by the way, in less than twelve months was to become "On to Paris!" Accordingly two ships, the "Germania" and the "Hansa," under the command respectively of Captains Koldewey and Hegemann, left Bremen in 1869. Public enthusiasm had by now become so keen that no less a gathering than the royal court, headed by his Majesty William I, King of Prussia, and Count Bismarck, attended their departure.

The royal presence failed to cast a blessing over the enterprise, for shortly a dense fog fell over the ships, signals were misunderstood, and they were separated never to meet again. The "Hansa" reached 70° 46′ N. and was frozen in. A howling northeast gale drove ice under her bow, lifting the doomed ship twenty feet into the air and sinking

her. The crew were forced to take to the ice with what supplies they could hastily gather, and they drifted helplessly on a floe for two hundred days before they could take to their whaleboats. Eventually, in a desperate condition they reached a colony of Moravian missionaries on the shore of Greenland, where they were rescued and taken home.

The "Germania," cut off from her companion ship and compelled to lay to for the winter on the coast of Greenland, nevertheless accomplished something toward her mission. From her anchorage sledge journeys were undertaken into the interior, Lieutenant Julius Payer reaching 77° N., the most northerly point so far reached on the east coast of Greenland, and bringing back to the world the discovery that the interior of Greenland was not a high plateau throughout but was in some places mountainous. When the ice about her broke, the "Germania" sailed for home, to find Napoleon III a prisoner, France a republic, and the German armies before the gates of Paris.

Sweden, too, in 1868, entered the Arctic in an attempt to reach the north pole with reindeer. Under Baron N. A. E. Nordenskjöld, chief scientist, and Count F. W. Von Otter, captain, the expedition in the "Sofia" reached 81° 42′ N. The attempt, however, was fated to an almost ludicrous ending. The reindeer were no sooner herded for the 650 mile drive than the Lapps let them escape, and the Swedes were stranded with six wrecked crews of walrus hunters.

Encouraged, apparently, by the failure of other contestants to better the records of England and America, Austria next lifted her flag in the Arctic. With his friend Lieutenant Payer, Lieutenant Weyprecht of the Austrian Navy reached 78° 43′ N. on the "Isbjorn" and returned in safety in 1871. Elated with their success, in 1872 they

equipped the "Tegethoff" at an expense of nearly $100,000 and set out once again with high hopes for the Arctic. In less than sixty days after leaving home, when they were near the northern end of Novaya Zemlya, the "Tegethoff" caught in the ice, from which she never escaped, and both their investment and their hopes were at the mercy of the drifting floes.

But out of their defeat came glory, for the ice which held them shifted to the shore of a hitherto undiscovered island of considerable area and importance at 79° 54′ N. Payer's log reads: "For thousands of years this land had lain buried from the knowledge of men, and now its discovery had fallen into the lap of a small band, themselves lost to the world, who far from their home remembered the homage due their sovereign, and gave the newly discovered territory the name 'Kaiser Franz Josef Land.'" Abandoning their vessel to its fate and dragging their small boats over the ice, the Austrians took possession of the island, from which they were later rescued by Russian fishermen.

For several years now England had seemed content to watch with interest and curiosity the attempts of other nations. In 1874, however, she aroused herself from her apparent inactivity and set about the preparation of the most pretentious expedition which had ever sailed into the North. She spent $750,000; she manned two of her best warships, the "Alert" and the "Discovery," with the "pick of the English Navy," 120 officers and men, and sent them north under Captains George S. Nares and Henry F. Stephenson. Then she waited while silence, the long blank silence of the Arctic, fell over the vessels. For sixteen months the dark mantle of the arctic night enshrouded them, until even the government became alarmed and the anxiety in the men's homes grew into a desperate fear.

At the end, out of the sixteen months came great news. Again the British Navy had broken the world's record. The warship "Alert" had reached 82° 27′. By dog sledge two of the officers, Markham and Parr, had pushed on to 83° 20′. The English flag had been planted at the farthest north ever reached by man on land, ice, or sea! "September 1st, 1875," records Commander Markham, "must always be regarded as a red-letter day in the annals of naval enterprize and indeed in English history, for on this day a British man-of-war reached a higher northern latitude than had ever yet been reached *by any ship* . . . and we had the extreme gratification of hoisting the colors at noon to celebrate the event."

The entire British Empire rejoiced, and awards were bestowed upon the victors. Gladstone and Disraeli were enthusiastic. Queen Victoria was "elated" as she extended her personal thanks in behalf of the whole English people. Accounts of obstacles conquered by the British officers increased public fervor and pride. Sheathed in ice until it was hardly recognizable, the man-of-war had plowed through raging seas and terrific storms with more than two-thirds of the crew down with scurvy. Barely escaping from splitting icebergs, their men freezing in the unaccustomed cold, the officers with traditional British valor had refused to accept defeat and had pushed on through Melville Bay to Cape York, to Cape Sabine, and on to Discovery Harbor.

England's achievement thrilled red-blooded men all over the world, and for the first time in history sportsmen ventured on "sporting trips" into the Arctic to shoot polar bears and to continue the search for relics of Sir John Franklin. Even the accomplishment of the Northwest Passage in its length became a sporting proposition. With this in mind, Sir Allen Young, a wealthy and prominent English

sportsman, equipped a full-rigged barkentine, the "Pandora," as a pleasure yacht for exploration in northern waters, and sailed for the Arctic in 1875. He was accompanied by James Gordon Bennett, the great American journalist, as second in command. Unsuccessful in their first attempt to sail entirely through the passage, they tried again in 1876 but were again beaten back without result.

In 1878 the same sporting instinct again sent two young American soldiers, Frederick Schwatka and W. H. Gilder, into the North in yet another effort to clear up any remaining doubts about the fate of Franklin and his men. There were those who had always refused to accept the story of his illness and starvation, and held to the theory that Franklin and the men with him had been murdered by the natives. Alone with the natives, Schwatka and Gilder made a remarkable land journey, traveling 2,800 miles on foot and with dog sledges, and succeeding in their resolve to clear the last doubts around the fate of Franklin. They traced the "Terror" to its grave in the Arctic Ocean and thus convinced men that it had been wrecked and that the members of the expedition had not been murdered but had died from the effects of exposure and starvation. The Americans gave to the bones of the ill-starred Englishmen an honored burial beneath the boulders, where they would never again be desecrated by wild beasts and wandering tribes of savages. They brought home for burial one body, the only one whose condition permitted transport. Over the rest they set up monuments to mark the undying memory of their sufferings and their exploits.

As yet no one had successfully worked out a northeast passage, although many had attempted it. The discovery of this passage was of particular importance to Russia and the Scandinavian countries. With the naviga-

tion of this passage in view, therefore, Nordenskjöld in 1878, under the patronage of the king of Sweden, set out in the "Vega" from Gothenburg and reached the northernmost point of the Old World, Cape Chelyuskin, in Siberia, which had "for centuries been the goal of unsuccessful struggles." At Chelyuskin the "Vega" was frozen in, and for 294 days she remained frozen in. Nordenskjöld was fortunate, nevertheless, for the "Vega" drifted continually in the direction upon which he had planned. He joyfully declared, "After a lapse of 326 years, when Sir Hugh Willoughby made the first attempt at a northeast passage, the 'Vega' sailed through Bering Strait, the first vessel to penetrate by the north from one of the great world oceans to another." Reaching the Pacific, Nordenskjold sailed on to Hongkong, Singapore, Suez, Naples, Lisbon, Copenhagen, and was everywhere acclaimed with honor and rejoicing. The "Vega" came home to Stockholm April 24, 1880, after a voyage of 22,189 miles.

Having made two unsuccessful attempts at the Northwest Passage himself, James Gordon Bennett, proprietor of the *New York Herald*, was still intrigued with the vision of its navigation. When in 1879 Grinnell put him in touch with Lieutenant George Washington De Long, who had previously gone into the Arctic in search of the lost Hall, he agreed to finance an expedition to attempt to reach the north pole from the east or at least to regain for America her lost record of the farthest north. He purchased Sir Allen Young's "Pandora," and like Hall defied the superstitions of the sea by changing her name to the "Jeannette." The expedition was indorsed by a special act of Congress, and De Long was appointed to the command. Bennett at first proposed carrying balloons, but later decided that they would be impractical.

Considerable feeling was aroused by De Long's order for the selection of the crew. It read: "Requirements for crew: Single men; perfect health; considerable strength; perfect temperance; cheerfulness; prime seamen; musician if possible. Norwegians, Swedes, Danes, preferred. Avoid English, Scotch, and Irish. Refuse point-blank French, Italians, and Spanish. The cook must be a good cook." Two years later when the tragic tale of the crew's end came back to America, many a man must have thanked fortune that his French, Italian, or Spanish blood had kept him at home. The crew when completed numbered thirty-three, including officers. Both the cook and the steward were Chinese.

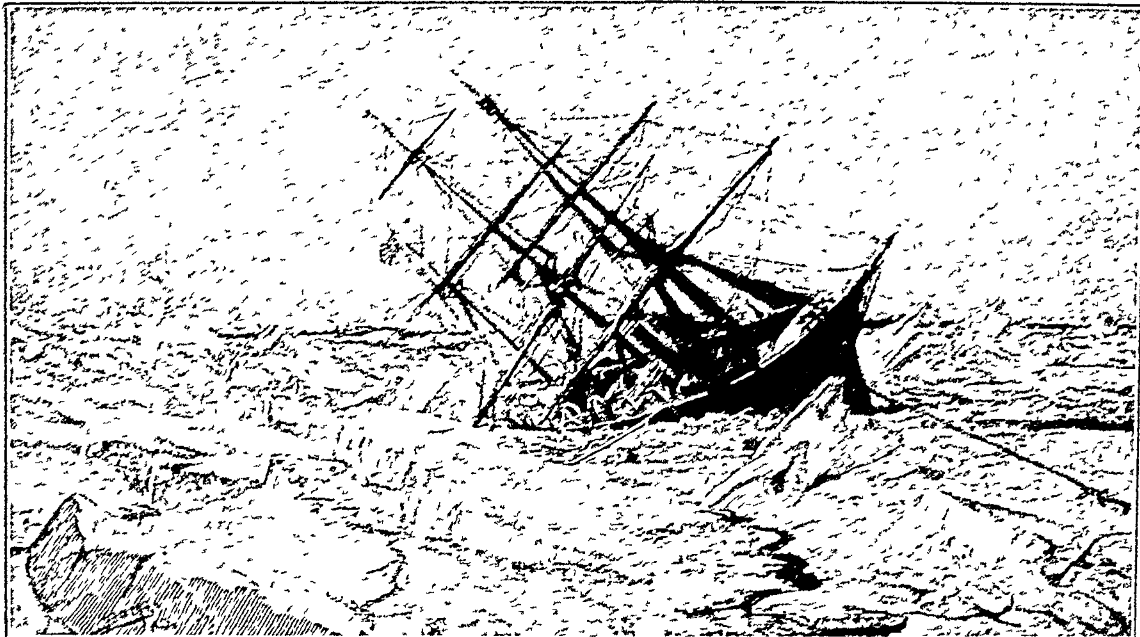
The "Jeannette" steamed out of San Francisco harbor, July 8, 1879, amid the salute of cannon, the shrill blasts of steam whistles, and the cheers of a multitude of people which blackened both the wharves and Telegraph Hill. It was confidently predicted that before reaching the north pole De Long would discover "a land filled with tropical verdure where heat issued from the hollow center of the earth, and that he would find the region of the pole itself a veritable Garden of Eden."

The "Jeannette" plowed the Pacific to Onalaska, where De Long made a stop to purchase furs for the men. At St. Michael's Bay the ship took on about forty dogs "which fight among themselves every five minutes and unless well beaten will not keep the peace at all." At Cape Serdze Kamen, where a stop was made to seek news of the Nordenskjöld expedition, De Long pasted a message inside a bright blue cap bearing the name "Jeannette" in gold letters, and gave it to a native Eskimo. He felt sure that the Eskimo would be so inordinately proud of the cap that he would show it to whalers, and thus the news of the



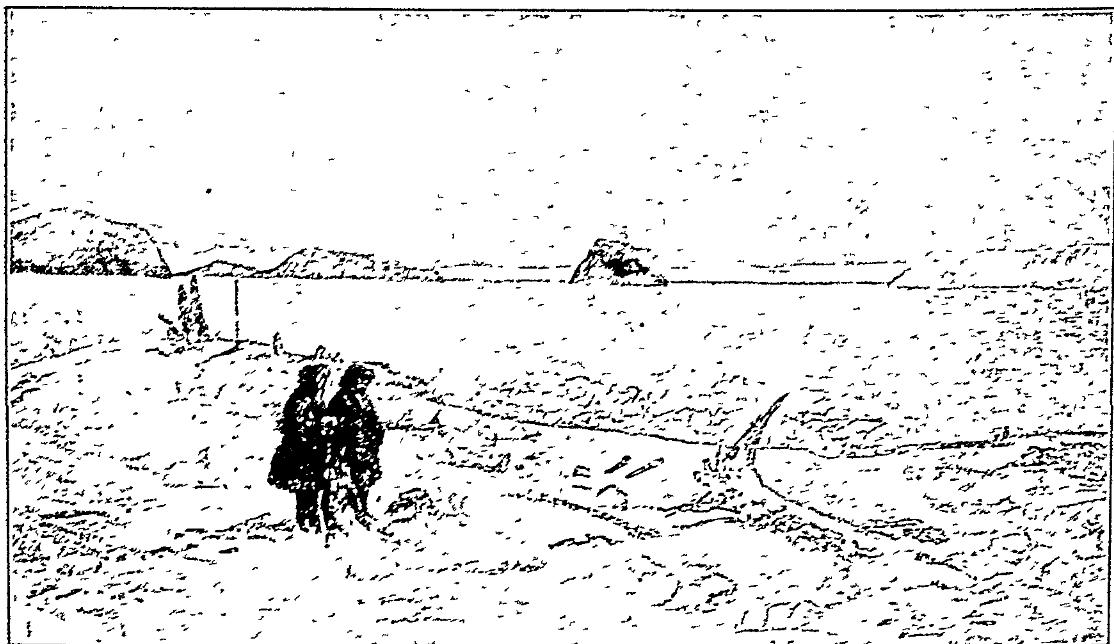
JAMES GORDON BENNETT FINANCED DE LONG'S EXPEDITION

Owner of the *New York Herald* Congress authorized the Secretary of the Navy to take charge of the expedition and to appoint De Long to its command.



THE "JEANNETTE" SINKING IN THE ICE

Two months after leaving San Francisco, the "Jeannette" was caught in the pack. De Long remained with her twenty-one months. The ice broke her in halves. De Long and his men sought safety in three small boats, June, 1881.



MELVILLE SEARCHING PARTY FINDS THE BODIES OF DE LONG AND HIS CREW

Buried beneath the snow at their camp, rescuers, too late, find their bodies and their records. Food was shared to the last and all perished together, March 27, 1882.

"Jeannette's" safe arrival at Cape Serdze Kamen would travel back to the United States. Later three whaling vessels reported seeing the "Jeannette" in the neighborhood of Herald Island, and then no further news of her was heard by an anxious world for more than two years. The story when it came was one of horror.

Sixty days after she left San Francisco so confidently the ice jam closed in on the "Jeannette" and she was held fast within sight of Herald Island. Spring came, summer, fall, and another winter, and still she was clutched in the jaws of the ice jam. Coal and supplies were running low. Mutiny was on foot among the men. Arctic madness had seized upon the minds of some of the crew. "We are drifting about like the modern Flying Dutchman," De Long wrote in his diary in 1881, "never getting anywhere but always restless and on the move. Coals are burning up, food is being consumed, the pumps are still going, and thirty-three people are wearing out their hearts and souls like men imprisoned for life."

Drifting within sight of a hitherto undiscovered island, they named it Jeannette Island, and six of the desperate men landed to explore it by sledge and to take formal possession in the name of the United States. So frightful were the masses of moving ice over which they went that they were forced to drag the dogs, who whined and pulled back in sheer terror.

Ulcers and scurvy broke out among the men. Three of the officers went down. De Long himself fell into one of the arms of a windmill which had been set up on deck and received a four-inch gash in the head which left him dazed for several days. "Oh my! Great big hole!" exclaimed the frightened Chinese cook who picked him up from the deck.

Eventually violent pressure of the ice forewarned De Long of the "Jeannette's" ultimate fate, and he ordered all supplies to be put off the ship. The ill-fated vessel sank groaning under the ice and left the party exposed to the elements more than two hundred miles from the Siberian coast. Loading their boats on heavy sledges, the men set out for Siberia, but they made only about three miles a day. Nine loaded sledges and five boats, carrying sixty days' provisions, had to be hauled across the moving floes. To do this, it was necessary to travel the road no less than thirteen times, seven with loads and six times empty-handed, thus walking twenty-six miles in making an advance of two miles.

At some point on their wanderings "red snow" came again into the arctic tale. "Blood-red snow!" De Long recorded its discovery in his log. For this, Ross, sixty years before, had been laughed at and scorned as a Munchausen, but De Long solved the mystery. "The color of the snow," he explained, "is caused by minute organisms, called *algœ* (unknown in the days of Ross), which give to the snow or to the water wherever they appear *the amazing red hue!*" At some time, too, they discovered another island which they named Bennett Island after the patron of the expedition.

Reaching open water, the party divided into three boats under the charge respectively of Captain De Long, Lieutenant Chipp, and Chief Engineer Melville. A howling gale lashed the seas to fury. The cutter containing Lieutenant Chipp and nine men was overturned and sunk with all on board. Melville's boat, with nine men, was separated from De Long's, which carried twelve. Riding the gale, Melville, as previously agreed, made for the mouth of the Lena River. The boat filled continually with water and the desperate men constantly bailed it out, at the same

time suffering excruciating tortures from thirst. After five days, during which they struggled at the mercy of the storm, their limbs swollen, their hands cracked and blistered, they landed and warmed themselves before a blazing fire of driftwood. Two days later, on September 19, 1881, they fell in with natives who assisted them to the Russian village of Gemmovialocke and dispatched a messenger for assistance to the garrison commandant at Bulun.

Meantime De Long, too, had reached the mouth of the Lena, and had he taken the direction of Gemmovialocke might have rejoined Melville. But it did not appear on his charts and, ignorant of its existence, he turned away from it and set out in the direction of Bulun. The march was one of misery and horror. Famished and exhausted, one man after another dropped and died. The record lives in De Long's pathetic diary: "Crawled into a hole in the bank, collected wood and built a fire. Nothing for supper except a spoonful of glycerine. All hands weak and feeble —God help us!" Three days later, overwhelmed with despair, he cried: "We are in the hands of God and unless He intervenes we are lost!"

Nindemann and Noros, the two strongest men, were sent ahead to seek help while De Long remained with the sick and dying. Alexy died; Kaach died; Lee died; De Long was too weak to move their bodies out on the ice. He noted in his diary: "October 27.—Iversen broke down. October 28.—Iversen died. October 29.—Dressler died during the night. October 30.—Boyd and Gortz died during the night. Mr. Collins dying." Through it all De Long stumbled southward, before his eyes the vison of his far-away home and his beloved wife and child.

On their desperate march Nindemann and Noros crept along the bank of the river to the westward. To the eyes

of the starving men a band of deer suddenly appeared. Crawling with the greatest caution, Nindemann got within 300 feet, but alas, they were to windward of him. They got his scent, and were gone in an instant! For supper, they boiled a little of the arctic willow with a boot sole. They lay all night on the snow. A little more boot-sole tea in the morning and they were off again.

The second night they burrowed a hole in the snow bank and slept by turns, five minutes at a time, stamping their feet in the five-minute intervals to keep from freezing. They were snowed in and frozen under the drift, and they dug themselves out again in the morning with great difficulty. Agreeing to drink a little of their precious alcohol, they found the bottle broken in Noros' pocket and the alcohol gone. So the third boot sole was their only meal that day.

As night approached they found a hut on the river bank. It was a welcome shelter, and inside was a pile of old reindeer bones which they burned and ate with the willow tea. The next night, at the final point of exhaustion, they had a little luck. Another hut was found and in it a wooden box. They tore it open with eager fingers, hoping to find food. Inside was a man's corpse in the last stage of decay. Morning found a blizzard raging, and they were forced to lie all day in their hut. Pushing forward along the river bank the next day, they were again without anything to eat until Nindemann cut away part of his sealskin trousers. For shelter that night they found a cave in the river bank but there was room for only one to sleep at a time. Another piece of the trousers went for breakfast. The men jested with each other. Noros felt ill; twice he spit blood. So it went day by day. Every day seemed their last.

A native hut! It looked like a palace. They had a meal of venison, their first in weeks. The native woman

offered Nindemann water to wash. His hands were bent sharp like claws and he could not wash his face. Out of pity the woman did it for him. The men tried to explain their errand. The natives could not understand; so they took the white men to their main camp, two days' journey away. The camp was full of people feasting. Nindemann and Noros made a last attempt to explain their errand, an anguished appeal for help for their beloved commander and their mates. The natives understood now, but they refused to organize a relief expedition. Some of them went away. The following day they returned and brought with them a Russian, the Commandant of Bulun. He could speak only Russian, and Nindemann and Noros could not speak a word of it, but he seemed to know the words "Jeannette" and "Americans." Taking a note they had written, he promised to return, but lying on their blankets, Nindemann and Noros gave themselves up to sobs and groans of despair.

The next evening, November 2, 1881, as they still lay on their rude beds looking out at the door, too miserable to move, a man came in dressed in fur. For a moment they did not recognize him. Then he spoke to them It was Melville!

"My God, Mr. Melville!" exclaimed Noros, "are you alive? We thought the men in the whaleboats were all dead!"

"De Long—where is he!" asked Melville anxiously.

"De Long!" they exclaimed. "We left him traveling southward toward Bulun. We came to get help"

The rescue party set out, Melville and his men, with provisions for ten days. For five days they traced back the route over which Nindemann and Noros had traveled. On the fifth day the native guides wished to return, but Melville drove them forward. "You will live upon the dogs," he exclaimed in anger, "and when the dogs give out *I will eat you*—if necessary to find De Long!" Melville

had already twice frozen his feet, and now again they were so frozen that he had to be carried from the sledge to the hut where they camped for the night.

A paper was found, which De Long had left on his march. Then they came upon the spot where De Long had buried his log books and instruments. Rich in observations, the log books were a revelation; they showed that De Long's wanderings had taken him over nearly 50,000 square miles of the Arctic Ocean and that he had proved that the continental shelf of northern Siberia extended far northward and was dotted with islands.

Through furious storms Melville pursued his search. Traveling over 670 miles, he could find no trace of De Long. Winter came and went. A relief expedition sailed from America under orders: "Omit no effort, spare no expenses to find De Long." The ship was burned off the coast of Siberia, but the men, finding Melville and Noros, continued the search. Suddenly on a March day a gruesome sight greeted them. Melville tells of the awful moment: "I saw a teakettle, and advancing to pick it up I came upon the bodies of three men partly buried in the snow. . . . One hand was reaching out . . . the left arm of a man was raised way above the surface of the snow . . . . I immediately recognized them as Captain De Long, Doctor Ambler, and Ah Sam, the cook."

The three bodies were frozen so fast to the snow that it was necessary to pry them loose with timber. "In turning over the body of Doctor Ambler, I was surprised to find De Long's pistol in his right hand," Melville relates. "I observed the blood-stained mouth, beard, and snow. I thought that he had put a violent end to his misery. A careful examination revealed no wound, and releasing the pistol from his tenacious death grasp, I saw that only three

of its chambers contained cartridges, which were all loaded. I then knew, of course, that he could not have harmed himself, else one or more of the cartridges would have been empty. I believe him to have been the last to perish. When Ah Sam had been stretched out, and his hands crossed upon his breast De Long apparently crawled away and died. Then, solitary and famishing in the desolate scene of death, Dr. Ambler seems to have taken the pistol from the corpse of De Long, doubtless in the hope that some bird or beast might come to prey upon the bodies and afford him food, perhaps alone to protect his dead comrades from molestation . . . he kept his lone watch to the last, on duty, on guard, under arms."

Seven miles away, at the top of a bold promontory overlooking the frozen polar sea, De Long and his brave comrades were buried. Erecting a cairn over the bodies, the searching party made a cross from a spar, a cross which still stands like a beacon in the silent desolation.

"Here," records Melville, "I laid out by compass a due north and south line, and one due east and west, and where they intersected I planted the cross which marks the tomb of my comrades. There we laid them away in sight of the spot where they fell, the scene of their suffering and heroic endeavor, where the everlasting snows would be their winding sheet and the fierce polar blasts which pierced their poor unclad bodies in life would wail their wild dirge through all time—there we buried them, and surely heroes never found a fitter resting place."

But the promontory proved to be no final resting place; for, even in their last sleep, after two years De Long and his comrades were brought home to America in 1883, on the orders of the government and given a final resting place with military honors under their country's flag.

Chapter XIII

FACING STARVATION AT THE WORLD'S FARTHEST OUTPOST

TRAGEDY followed in the wake of tragedy until the appalling sacrifice of human lives in the Arctic aroused the world. The coasts of Greenland down as far as Newfoundland became known to seamen as the "graveyard." Thousands of ships had sailed into the fog banks along these shores never to be heard from again. On October 1, 1879, eleven nations met in conference at Hamburg. There in the International Polar Conference plans for the strategic conquest of the Arctic were discussed and an alliance of forces agreed upon. The nations represented agreed to the establishment of a number of widely separated outposts or stations completely encircling the north pole. At the second meeting of the conference in Bern, August, 1880, the nations undertook the establishment of stations where synchronous observations might be carried out.

The American forces, in pursuance of this agreement, were placed under the command of one of the greatest arctic explorers the world has ever known, then a young lieutenant with an unconquerable spirit, Adolphus W. Greely. Lieutenant Greely was ordered by the War Department to Lady Franklin Bay with less than three days in which to draw up a list of his necessary supplies and make his departure. His expedition consisted of four officers and nineteen men of the Army, an astronomer, a meteorologist, a photographer, and two Eskimos. With orders to conduct "scientific observations and explora-

THIS BOAT AND ALL HER MEN WERE LOST AT SEA

In a hurricane the three boats were separated (1881) Chipp's boat was never heard from again Melville's with eleven men landed in a mouth of the Lena River. De Long landed with fourteen men in another mouth of the Lena



ICE AND MUD FORCED DE LONG TO WADE ASHORE

Lost in the Siberian wastes "Shall we go west or south." They went south—it was the wrong way! This mistake cost all but two their lives.



POLAR BEARS ATTACK THE WHALERS' BOATS

Above is a reproduction of a rare old print showing the attack.

tions" they sailed from St. John's, Newfoundland, on July 7, 1881, from which they set forth in their vessel, the "Proteus," a converted sealer, for their destination in the North.

Greely, a man of action with an iron will, landed his men and their supplies at the old winter quarters which Nares, six years before, had set up for the "Discovery." Here they built commodious quarters which they christened "Fort Conger." Scientific observations were instituted and sledge journeys of discovery begun despite the severity of a winter with an average temperature of 75 degrees below the freezing point. They visited Hall's grave and found it to be undisturbed in the midst of the arctic wilds.

Greely was determined to push forward to the North on sledges and to win for the United States the honor of a new farthest north victory. On April 13, 1882, he dispatched Sergeant David L. Brainard with nine men and four heavy sledges from Fort Conger to strike northward. On the following day Lieutenant James B. Lockwood with twelve men and eleven dog sleds followed in their footsteps. The lines of strategy were brilliantly laid: Sergeant Brainard was to put down a base for the use of the lighter, fresher men who followed him.

Violent storms swept into the faces of the advancing men; rough ice impeded their progress. Suffering from snow blindness and with their sledges broken, the army of men pushed on northward, husbanding their scanty food supply and dragging their heavy sledges through banks of snow. Lowering themselves and their sledges on ropes to the bottom of ice crags, circling long distances about the opening ice lanes, and hacking their way with their axes, they fought onward against every obstacle.

Finally on May 15, 1882, the great day came. Greely's men stood on Lockwood Island, land of their own discovery,

at lat. 83° 30′ N. For the first time in 275 years the record no longer belonged to England but to America, and the Union Jack gave way to the Stars and Stripes. Here at the farthest north ever reached by man was unfurled a beautiful silk flag made by Mrs. Greely.

Surprisingly there appeared evidences of vegetable and animal life at this high altitude. Lemmings, ptarmigans, foxes, and hares, small plants and mosses robbed the scene of its desolation and kept up the spirits of the exhausted men. But the return journey was a battle worthy of the strongest. As Lockwood stumbled onward his thoughts turned constantly to scenes of his distant home. Amid the darkness he saw maddening visions of the sunny playgrounds of his youth. Facing starvation his mind was full of memories of the good things to eat he had formerly enjoyed. Staggering into Fort Conger at the point of exhaustion, he announced the joyous news of his great victory.

Now the "retreat" homeward was begun. The War Department had ordered their return "not later than September 1, 1883," southward to Littleton Island or until they met the relief vessel.

"And so," recorded Greely in his notes, "we turned homeward, knowing we had the courage to face the blinding gale, the heavy floes, the grinding pack, the countless other dangers which environ the arctic navigator; and having also, though we knew it not, heart and courage to encounter uncomplainingly, on barren crags, the hardships and horrors of the arctic winter, with scant food, shelter, and clothing, with neither fire, light, nor warmth, and to face undauntedly intense cold and bitter frost, disaster, and slow starvation, insanity, and death."

Greely believed all was well on the homeward trail. The government would send new stores of supplies, as it

had agreed, to Littleton Island. But far away in the tempestuous seas on the road to the Arctic the relief ship "Neptune," in charge of William Beebe, Jr., was blindly slashing its way. The old sealing vessel was loaded with supplies for the Greely expedition. It attempted to penetrate to the Kane Sea but was stopped by the ice It retreated to Brevoort Island but here Beebe failed to leave any provisions. He took his ship back to Littleton Island and cached two depots of 250 rations, about ten days' supply, and sailed back in September, 1882, to St. John's in Newfoundland, carrying with him more than 2,000 rations which might have made a full supply for Greely's men for three months. He fulfilled the letter of his instructions but failed to meet the emergency.

After one of the world's greatest exploits Greely and his men found themselves facing starvation. They passed their first terrible winter of privation. The following summer the government sent Lieutenant Garlington on the "Proteus" with supplies. Garlington was impressed with the necessity of reaching Lady Franklin Bay, but this proved impossible. He landed near Cape Sabine but left no provisions. The day after he landed at the cape his ship, crushed in the ice, sank with all the precious supplies. Garlington and his men reached Cape Sabine, where they took for themselves every pound of food they could reach, the only stores that awaited Greely's starving men who were pushing on toward this depot. Garlington's men were rescued by the "Yantic," an auxiliary government vessel, but Garlington failed to ask Captain Wilde to go north and lay down new supplies for Greely's men, thus leaving them doomed to starvation.

Greely's fate seemed sealed. Public opinion throughout the United States was highly inflamed against the men

of the blundering rescue ships. The record shows that "from July 1882 to August 1883 not less than 50,000 rations were taken in steamers 'Neptune,' 'Yantic,' and 'Proteus,' up to or beyond Littleton Island, and of that number only about 1,000 were left in the vicinity, the remainder being brought back to the United States or sunk with the 'Proteus.' "

In a magnificently heroic retreat Greely and his men marched southward until they established a permanent camp called Camp Clay near Cape Sabine on October 15, 1883. Here they built huts of heavy granite stones, dug from the snow and ice and lifted into place with swollen and bleeding hands. After the back-breaking work the enfeebled men crawled into the huts, their torn clothing scarcely covering their aching, shivering bodies.

In desperate patience they awaited the relief ships that never came. They knew that forty miles away at Cape Isabella, 140 pounds of beef had been left by the Nares expedition eight years before. Four men, Rice, Elison, Lynn, and Frederick, volunteered to make the attempt to bring this into camp. With only sixteen ounces of food a day for each man (the same allowance that their comrades were on at the camp) they undertook this terrible journey. Enfeebled as they were, they reached the cache and, with the meat on the sledge, started on the return journey.

Elison was the first to fall. His impoverished blood failed to supply the proper circulation to his limbs. His hands were frozen. Frederick wrote in his journal: "I placed one of Elison's hands between my thighs, and Rice took the other, and in this way we drew the frost from his poor limbs. He cried all night from the pain of it."

They dragged the heavy sledge two days more. Then Elison's limbs again became so frozen he could not continue.

They found and cut up an abandoned boat for fuel and built a fire. "When the poor fellow's face, feet, and hands began to thaw from the artificial heat his sufferings were such that it brought the strongest to tears."

They carried him forward for nineteen hours more and then he could go no farther. They decided to camp and send Rice in for aid. Lynn and Frederick crawled into the sleeping bag with their suffering companion. It was so cold that the bag froze solid and they were unable even to turn over. They had to be cut out of it later by the rescuing party. Elison's sufferings were such that his two companions nearly went insane with helpless sympathy.

Rice, traveling twenty-five miles in sixteen hours, reached the camp. Greely recorded: "How he made it, he scarcely knew, but he traveled in darkness across ice newly formed which bent and cracked under him as he passed. As he reached Buchanan Strait the moon fortunately shone forth. . . . A broken, exhausted man, his staggering footsteps awakened me at midnight . . . inspired me with horror before his frozen lips could separate to say: 'Elison is dying in Ross Bay!' "

Brainard and Christensen were dispatched with brandy and food. The beef was abandoned that Elison might be brought into camp.

This was in November, and their sufferings had hardly begun. By March 1884, the men lay on the floor all day in their sleeping bags almost too weak to move. Rations were barely sufficient to sustain a feeble flame of life. The sufferings of Elison continued almost beyond human endurance.

"My toes are burning dreadfully, and the soles of my feet are itching in a very uncomfortable manner. Can you not do something to relieve this irritation?" pleaded Elison to Doctor Pavy.

"Poor man," said Greely, "he little dreams that he has neither toes nor feet—they having sloughed off in January!"

One day, while they suffered, the cook lighted the alcohol lamp without removing the plugs of clothing from the hole in the roof and the fumes nearly suffocated the entire party. In the excitement a half pound of bacon was stolen. Food had been stolen before at various times but no one had yet been able to catch the thief. This time, however, his greed revealed him. "A deed so contemptible and heartless could not long remain concealed from those who had been injured. He had literally bolted the bacon, and his stomach was overloaded to such a degree that in its enfeebled state it could not long retain this unusual quantity of food, and his crime was thus detected. Great indignation was expressed that in our midst lived a man so vile and corrupt, so utterly devoid of all feelings of humanity as to steal from his starving and dying companions."

Death took up its abode in their miserable hut, adding its ghastly terrors to their almost unbearable existence. Day by day it laid its finger on one after another. The weakest perished first: Christensen, the Eskimo, then Lynn, who when he was dying asked for water—"and we had none to give him!" Rice sacrificed his life for his comrades by going back in search of the abandoned beef. Jewel died. The victorious Lockwood died. The rest lived on shrimps and sea lice, of which Brainard caught about twelve pounds a day until his nets were carried away and lost in the ice.

All this time one man, Private Henry, who had been pardoned by Greely time after time, was continuing to steal food from his dying mates. At last the time came when his crimes could be tolerated no longer. On his stolen

food Henry had grown stronger than any other two men left alive. His existence was a constant threat and danger to the safety of the rest of the party. There was but one safeguard. Henry was reluctantly but firmly ordered shot. "Fully twelve pounds of sealskin were found among his bundles."

The surviving men clung to life with desperation. They gnawed on sealskins, ate their boot soles, ate even the lashings of their sledges. Day by day the deaths continued. Only seven men were alive on June 21, 1884, to hear faintly the whistle of the ship that told them of their rescue.

Congress had offered a bounty to any whaling vessel that should bring rescue to Greely and his men. The Scotch whaling fleet set out very early that year, and it was from experience gained by their search for available passages through the ice that Commander Winfield Scott Schley with the United States Navy vessel "Thetis" boldly pushed through the waters of Melville Bay and reached Cape Sabine just in time to rescue from the very brink of the grave the "seven survivors of these horrible hardships."

Lieutenant Colwell of the "Thetis," coming on shore in the small boat, saw the figure of a man stumbling down the hill. It was Long. Colwell sprang ashore and rushed up to him. Schley in his log records: "He was a ghastly sight. His cheeks were hollow, his eyes wild, his hair and beard long and matted. His army blouse, covering several thicknesses of shirts and jackets, was ragged and dirty. He wore a little fur cap and rough moccasins of untanned leather tied around the leg. As he spoke his utterance was thick and mumbling, and in his agitation his jaws worked in convulsive twitches."

"Who all are there left?" hailed Colwell.

"Seven left."

"Where are they?"

"Over the hill—the tent is down."

"Is Greely alive?"

"Yes, Greely's alive"

The scene at the camp stirred the emotions of the rescue party. "One of the relief party, who in his agitation and excitement was crying like a child, was down on his hands and knees trying to roll away the stones that held down the flapping tentcloth. . . . There was no entrance except under the flap opening, which was held down by stones. Colwell called for a knife, cut a slit in the tent cover, and looked in. . . . It was a sight of horror. . . .

"On one side close to the opening, with his head toward the outside, lay what was apparently a dead man. His jaw had dropped, his eyes were open but fixed and ghastly, his limbs were motionless. On the other side was a poor fellow, alive, to be sure, but without either hands or feet, and a spoon tied to the stump of his right arm. Directly opposite, on his hands and knees, was a dark man with a long matted beard, in a dirty, tattered dressing gown, with a little red skullcap on his head, and brilliant staring eyes." As Colwell appeared, he raised himself a little and put on a pair of eyeglasses.

"Who are you?" asked Colwell. The man stared at him vacantly, making no answer.

"Who are you?" Colwell asked again.

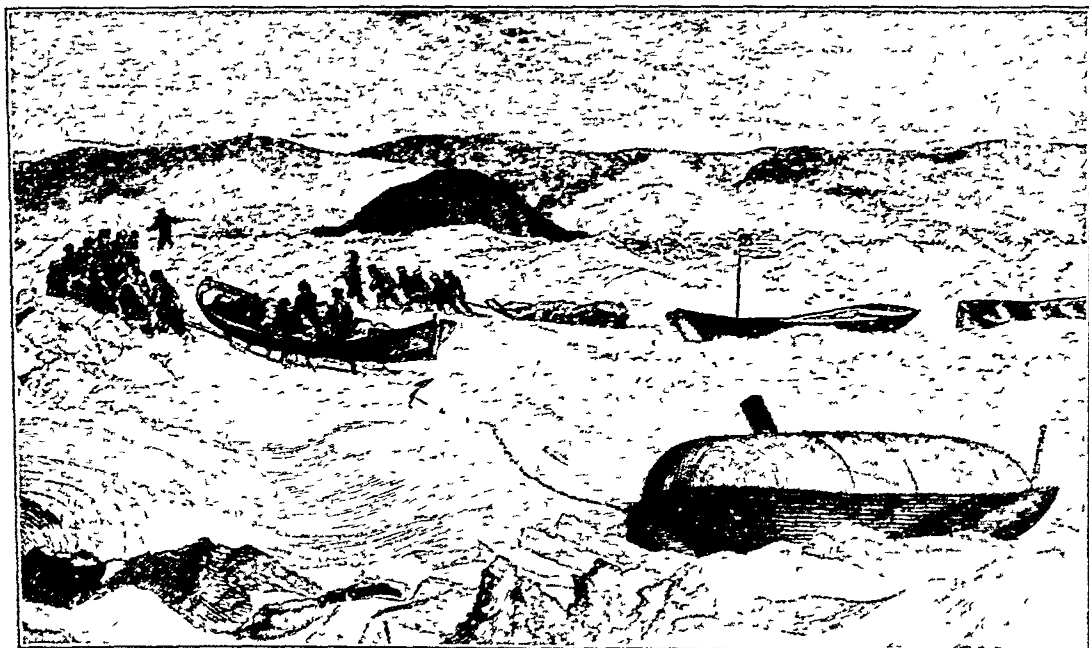
One of the men spoke up, "That's the Major—Major Greely."

Colwell crawled in, took him by the hand, and asked, "Greely, is this you?"

"Yes," came the faint, broken whisper. Greely hesitated and fumbled with his words. "Yes. . . .

HEROIC RESCUE OF GREELY AT THE POINT OF DEATH—June 22, 1884

The U S Navy vessel "Thetis" under Captain Schley finds Greely and six men at the point of death from starvation One man died insane, another's leg was roughly amputated, another was totally paralyzed.



GREELY SETS THE WORLD RECORD FOR FARTHEST NORTH

Their launch nipped in the ice, the men are forced to drag their heavy boats at the rate of two miles a day back to safety



HANDS AND FEET FROZEN

Rice traveled fifteen miles in darkness across the ice and staggered into camp with barely strength to whisper from frozen lips, "Elison is dying in Ross Bay."



TOO WEAK TO RISE FROM THE ICE

Greely and six comrades, one of whom later died from his injuries, were taken by a rescue party on board the "Thetis" There they were fed and nursed back to life (June, 1884).



SIXTEEN MEN WEAKENED BY HUNGER CAN HARDLY MOVE THIS BOAT

Two men easily moved it and four carried it on their shoulders when food was plentiful

Seven of us left. . . . Here we are . . . dying . . . like men. . . . Did what I came to do . . . beat the best record."

In that moment Greely held but one thought in his heart. He had beaten the record of farthest north and planted the flag of his country within 350 miles of the north pole.

In the meantime Long had been tenderly lifted aboard the "Thetis," where he told his pitiful tale. All of his comrades were dead except Greely and five others, and they were on the shore in "sore distress . . . sore distress." It had been a "hard winter . . . a hard winter."

"No words," wrote Schley, "can describe the pathos of this man's broken and enfeebled utterance, as he said over and over, 'a hard winter . . . a hard winter.' The officers who gathered around him in the wardroom felt an emotion which most of them were at little pains to conceal."

They carried the starving men aboard ship, carefully gathering up all records and relics. "Near the sleeping bags were found little packages of cherished valuables, carefully rolled up (by those now dead) and addressed to friends and relatives at home. The survivors, too, had already done up and addressed their own messages. And, strange as it may seem, a pocketbook was found containing a large roll of bills carried by the owner for some unaccountable reason to the barren shores of Lady Franklin Bay. . . . It was not difficult to move the bodies of the dead; there was only a thin covering of sand above the mounds that formed the graves."

Only six lived to reach America out of a company of twenty-five courageous and uncomplaining heroes. Lockwood, who had planted the flag farthest north, was among the dead.

Records, instruments, and collections of botanical, zoölogical, and anthropological researches were saved. In every detail Commander Schley performed his work well. "No relief or expeditionary vessels ever entered at so early a date into the dangerous waters of Melville Bay," wrote Greely in praise of Schley and the men of the United States Navy who had dared everything in his rescue.

The first man of the Schley rescue expedition to grasp the hand of Greely was the famous Melville, survivor of the ill-fated De Long expedition, who had returned from his struggles through the Siberian Arctic just in time to go North again in the search for Greely. Melville invoked the "admiration of the world," and on his return with the Greely survivors was finally rewarded by Congress "as an act of tardy justice" by being raised "fifteen numbers on the Navy list for his heroic conduct." Later he became a rear admiral.

The great Greely came home to meet his nation's acclaim and to become a major general in the United States Army. As "patriarch of all the world's explorers" he was to live on through another half century to see the conquest of both the north and the south pole and to grip the hands of the victors.

CHAPTER XIV

THE RACE OF THE NATIONS FOR THE GOAL

A TALL, keen-eyed, wiry youth, twenty-eight years of age, walked down the street in Washington, D. C. He was a civil engineer in the United States Navy. He had just returned from the Nicaraguan Canal Zone and was waiting for a new assignment to duty in some far corner of the world. In the hot sun of a Washington summer he mopped his forehead. Pausing at a stand, he picked up a book, the famous two-volume work of Kane on arctic exploration. Instantly, he was interested. Absorbed in the adventures of Kane, he read throughout the summer night, forgetting to eat or sleep, so intense was his concentration. By morning his fate was sealed. He would drive his dog sledge over the wild, desolate wastes and storm-lashed ice fields to the pole itself.

The tall youth whose long, gaunt figure was to be a decisive factor on the arctic battle grounds was Lieutenant Robert E. Peary. A year after he casually picked up the worn secondhand volume he had embarked upon his first trip of exploration off the Greenland ice cap. In 1886, accompanied only by a Danish assistant and eight natives, he penetrated the inland ice at the base of the Noursoak Peninsula, saw the fossil beds of Atanekerdluk, and the Tossukatek Glacier, and returned enthusiastically to the United States to raise funds for a second expedition. Here he impressed the scientists with his vigorous intensity of purpose, and in 1891 the second Peary expedition sailed in the "Kite" for Greenland.

Aboard ship on this second trip was a man around whom bitter disputes would wage in the future. Sailing into the Arctic as chief surgeon on the "Kite" was that complex personality, Dr. Frederick A. Cook. Aboard, also, was another historic character, Matthew Henson, the negro servant of Peary, who was to be the first, and perhaps the only, black man to reach the north pole. Sailing with Peary, too, was the first American woman to dare a drive at the north pole. The explorer's own young wife.

Except for the fact that far out at sea Peary fell on shipboard and broke his leg, which Doctor Cook set, the voyage was uneventful. They landed at McCormick Bay, and Peary from his bed directed the building of "Red Cliff House." In the spring, when the broken bones had knit, he explored Inglefield Gulf and established caches of provisions for later use in his projected expedition across the ice cap. On a journey of twelve hundred miles by dog sled, through bitter blasts, he determined for the first time the northern extension and the insularity of Greenland. He discovered Melville Land and Heilprin Land and laid the foundation for further investigations of the Greenland highlanders or native Eskimos. He had decided that the north pole could be reached only through the help of the natives, and he determined, as did Hall before him, to study their habits and to learn how to adapt himself to their way of life.

He returned to the United States to apply for a three-year extension of his leave of absence from the Navy. His request was granted by the Secretary of the Navy. Securing the "Falcon," he sailed in June 1893 on his third voyage to Greenland. The expedition this time consisted of fourteen persons, including the faithful Henson and Mrs. Peary, who again loyally accompanied her husband. On arrival at Bowdoin Bay, the party constructed a base head-

quarters at Lifeboat Cove, where a daughter was born to the Pearys, the first white baby to be born in high northern latitudes. The "Snow Baby," Peary called her, and christened her Marie Ahnighito. Wrapping her in soft arctic furs, he draped the American flag about her, the flag which he hoped to plant on the top of the world.

With no time to lose he started northward on another twelve-hundred-mile trek across the ice caps, but the temperature dropped to less than sixty degrees below zero, storms assailed him, and he was forced back after only thirteen days in the field. The famous "Iron Mountain" of Melville Bay, first seen by Ross a hundred years before, was now his goal. He found that the huge mass was a meteorite, and marked it for eventual removal to the United States.

By a stroke of daring he amazed the world. He ordered his entire expedition to return to America. Alone except for Hugh J. Lee and Mat Henson, he himself remained to face another year in the Arctic, his life depending on a woman thousands of miles away. He had staked everything on his wife, who had returned to America with the rest of the party for the purpose of organizing another expedition to bring up stores in the following year. Peary planned to live like an Eskimo and train himself for the grueling battle that was before him.

At the same time, far over the arctic horizon, Dr. Fridtjof Nansen, the Norwegian who had crossed the Greenland ice cap for the first time in history in 1889, was pushing his way north in the historic "Fram" to engage in an experiment which had aroused world-wide discussion. Wreckage from the lost "Jeannette," of the De Long tragedy off the coast of Siberia had been found off the coast of Greenland. Scientists were mystified. There could be

only one solution: the wreckage must have been swept by the arctic currents over the top of the world. This theory would explain, too, why Eskimo relics, made only by tribes in Alaska, were sometimes found off the coast of Greenland. Nansen was convinced that these circumstances proved the existence of currents across the polar ocean. He argued from them that a boat specially constructed to resist the pressure of the ice might hope in two or three years to drift in the current from the Atlantic to the Pacific Ocean and possibly across the north pole itself.

Never had an idea received such hearty disapproval. Of twelve great polar experts then living, not one indorsed it. Greely, the ranking American authority, who held the farthest north record, declared that the "Fram," even if built solid, must inevitably go to the bottom as soon as it was exposed to the pressure of the ice. "Arctic exploration is sufficiently credited with rashness and danger in its legitimate and sanctioned methods, without bearing the burden of Doctor Nansen's illogical scheme of self-destruction," he declared. English authorities, too, without exception took sides against Nansen. Despite the opposition, however, Nansen succeeded in winning the support of the Norwegian Congress, which granted him about $60,000, or two-thirds of the cost of the undertaking. The balance having been raised by private subscription, Nansen undertook to prove his theory.

The "Fram" was designed and built for the voyage by Colin Archer, famous shipbuilder of Norway. It was most lavishly equipped. Twelve men besides Nansen comprised the officers and crew. They were under the command of an able shipmaster, Captain Otto Sverdrup, who had taken part in an earlier Greenland expedition.

Sailing from Norway in 1893, Nansen and Sverdrup launched boldly into the ice pack of the Siberian seas. Within three days the "Fram" was frozen solid in the ice, and the hazardous experiment had commenced.

While Nansen was locked in the ice jam, waiting to drift over the top of the world, and Peary was alone on the desolate frontiers of Greenland, other daring adventurers appeared in sensational exploits. Walter Wellman, an American, who was to make three attempts for the farthest north, reached 81° 26′ on a Norwegian ice breaker off Spitzbergen, before he was wrecked. Sir Martin Conway of England crossed Spitzbergen. Andrée sailed from Sweden to make the first attempt to reach the north pole in a balloon.

Wedged in by the ice floe, Nansen and his men listened to the horrible grinding, their ears strained for the cracking sound that would mean death to all their hopes. Their ship shivered and creaked. Could she survive the terrific pressure?

"The eruption that will seal our fates may occur at any moment," wrote Nansen in his log in 1895. "It will either force the ship up or swallow her down. . . . Liv is two years old today. She is a big girl now. I wonder if I should be able to recognize her. . . . Many a thought will be sent northward from their celebration, but they know not where to look for us. They are not aware that we are drifting here embedded in the ice in the highest northern latitudes ever reached—in the deepest polar night ever penetrated."

Suddenly the great moment arrived. The ship was caught between the horrid jaws of the tremendous floes. Every timber shivered and groaned. Then gradually she lifted above and was forced upwards beyond the reach of

the destruction that sought to smash her into kindling wood. Nansen was right! His opinions were justified. So carefully had the problem of her construction been worked out that she could not be crushed. The men could depend on her to carry them through.

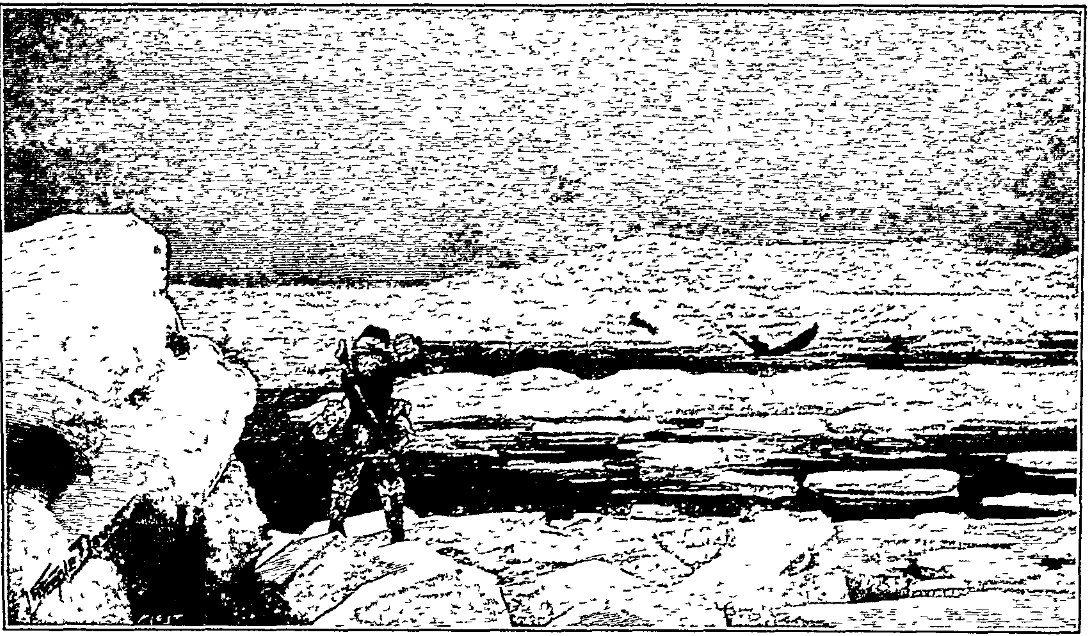
From the first her drift was irregular—now north, now south, now east, now west. But week by week found her forging steadily northward until one day the world's record was wrested from America, and for the first time in a thousand years, the first time since the days of Eric the Red, the flag of Norway was planted victoriously in the Arctic. On March 14, 1895, the farthest north was reached by the "Fram"—84° N. 102° E.

Nansen refused to rest on his laurels. Leaving his ship, he himself made the dash for the north pole with one companion, Lieutenant Hjalmar Johansen. With three sledges hauled by twenty-eight Greenland huskies, he and Johansen, equipped with a hundred days' rations for themselves and fifty for the dogs, counted on making the pole in fifty days. For three weeks they struggled against storms and mists, constantly falling into ice cracks which it was impossible to see and helping the sledge dogs over the broken hummocks that made travel almost impossible.

One day as Johansen bent down to pick up a hauling rope he received a cuff on the ear that all but stunned him, followed by a blow that laid him flat on his back. A huge polar bear stood over him.

"Take your gun!" Johansen cried to Nansen, who was busy at the kayak (skin boat).

Nansen's gun was buried beneath luggage in the bottom of the boat, and the unfortunate Johansen could only try to defend himself with his fists as best he could, while



JENS DIED BY DROWNING, WHILE TRYING TO KILL A SEAL FOR FOOD

A few days before (1886) he had stood by Long when in danger of death, saying, "You go—me go too!"



RICE DIED IN FREDERICK'S ARMS

Trying, while desperately ill, to bring in food, Rice was finally overcome Frederick held him in his arms half an hour till death came While waiting its approach they laughed and joked as in days gone by.



FUNERAL PROCESSION OVER THE ICE—DEAD OF STARVATION

First to die in the Greely camp was Sergeant William H Cross Men gave up to despair and even stole the food from the lips of their desperate comrades



ONLY SEVEN MEN EVER LEFT THIS CAMP ALIVE

Here at Camp Clay, Private Henry was executed for stealing pieces of sealskin, the only remaining food One by one, sixteen men went bravely to their deaths in search of food.

Nansen threw himself on his knees and dug for it. With one hand Johansen seized the throat of the animal and held fast.

"Shoot!" he cried to Nansen. Then, "You'll have to look sharp!"

Suggen, the dog, sprang at the bear. With one paw on Johansen, the animal dealt Suggen a blow with the other that laid him cold. Then with open mouth the bear plunged viciously at Johansen's head. Bang! A flash from Nansen's rifle! The huge beast staggered forward and fell. Johansen crawled from beneath him—a slash down the side of his face and his hand bleeding.

Pushing ahead with the dogs tugging and straining at the sledges they made only 135 miles in twenty-three days. With the north pole but 235 miles away and still unconquered, they were forced to give up in despair, but not before the glory of another victory was theirs. They had pushed the record for Norway up to 86° 5′ N.

Facing southward, the explorers began their retreat. Since they had not planned to return to the ship, they shaped their course toward Spitzbergen. Ill luck pursued them. Their watches ran down, and they could not obtain their correct longitude. Johansen was again attacked and nearly killed by a bear. Food ran low and they were compelled to kill and eat their dogs. Weary and exhausted, they reached a small island near Franz Josef Land and built themselves a stone hut covered with walrus hide in which to spend the winter. The spring of 1896 came. Goods and supplies were packed in their kayak ready for a drive to Spitzbergen, when suddenly it broke loose from its moorings and drifted away. The kayak with its burden represented their last desperate chance for life. Nansen sprang into the icy water and swam after it. Numbness

of his muscles threatened to overcome him, but grasping a snowshoe that lay in the stern of the canoe, he pulled himself in and paddled to shore, where Johansen rubbed his frozen limbs back to life.

Thirty days passed. Their situation was desperate. Over the barren wastes of Franz Josef Land a human figure came into view—Frederick G. Jackson, also on an expedition in the interests of science. He took them to the hut where he and his companions were living and fed them and kept them until a supply ship appeared on which they returned to Norway. They reached home to find that the "Fram," after reaching a northern point of 85° 5′, had blasted her way through the ice with dynamite. A "ship of destiny," the "Fram" was fated to sail later to the bottom of the world for thrilling adventures in the Antarctic.

In Greenland, Peary, as oblivious to what Nansen had accomplished as though he were among the dead, was waiting for tidings from the courageous Mrs. Peary in America. When the spring of 1896 came bringing the warmth of the sun, with Lee, Hensen, five natives and six dog teams, Peary started on one of the most heroic journeys ever undertaken in the Arctic, a journey which was to have extended his exploration. Fierce storms had entirely snowed under all his caches of food and supplies. Not a mark of them remained. Where he expected to find food, an unending blanket of snow spread unbroken in every direction. The Eskimos whimpered with fear and in the night stole away, leaving him dependent on his own resources and the help of his servant Henson and the loyal Lee. Lee became disabled by frostbite. Many of the dogs died or were shot and eaten. No game could be found. For thirty-five days they ate nothing except

fragments; for four days and nights they had nothing at all. Then, fortunately, they killed a rabbit and later a musk ox. Behind them lay the long journey over the ice cap 8,000 feet in altitude, with its thin biting air and its piercing winds. By desperate forced marches they made it at last, eating the dogs one by one, until from their pack of forty-two only one remained alive at the end of the journey.

A ship finally emerged from the distance, the faithful "Kite," back again in the Arctic to keep its tryst. Mrs. Peary had succeeded. In command was the great arctic mariner, Captain Robert (Bob) Bartlett. There was but one purpose in Peary's mind as they sailed back home—to organize another expedition to bring to America the gigantic ninety-ton meteorite, "Iron Mountain," to stand forever as a world wonder in its proud position in front of the Museum of Natural History in New York.

Unmindful of aspirations other than his own, Peary bent his energies toward a return to the North, while other men commanded the attention of the world. The Swedish aëronaut, Salomon August Andrée, became the "World's Great Mystery." After many years of preparation, three men, Andrée, Strindberg, and Fraenkel, in the balloon "Ornen" ascended in 1897 from Spitzbergen and sailed off on the first voyage to the north pole by air. They were never heard from again. The search for them grew into the sensation of the day.

From Norway in 1899 the "Fram" sailed again into the arctic seas under the command of Captain Otto Sverdrup, in an attempt to break its own record. For four long years Sverdrup and his men explored the coasts about Ellesmere Island and Jones Sound, discovered the northern sides of North Cornwall and Findlay Islands, and charted for the first time the winds and currents of these dangerous

seas. Then having carried the Norwegian flag to 81° 38′ N., they turned homewards only to find that in their absence the honors had been lost for Norway, never to be regained.

Italy had entered the race with an expedition organized and led by Prince Luigi, duke of the Abruzzi, at a cost of approximately $200,000. Doctor Nansen, who, of course, held the world's record for Norway, had generously assisted in making the plans. The "Stella Polare" had been purchased and equipped with supplies for a four-year battle in the arctic wastes, and the young commander—he was but twenty-six years old—had appointed as second in command Captain Umberto Cagni of the Italian Navy. The expedition when completed consisted of twenty-five persons, including several distinguished scientists.

The Italians reached Archangel, which was to be their starting point, June 30, 1899. With more than a hundred Eskimo dogs on board, Prince Luigi forced his way on through the British Channel to Prince Rudolph Land at 82° 34′ N. Here the steamer was so severely crushed by the ice that all supplies had to be removed. A winter headquarters was built on Rudolph Land. Water was pumped from the ship's hold, a great leak on her port side stopped, and the engines, frozen under nineteen inches of solid ice, protected so that they might be of use again should the warmer spring weather release the vessel.

Out for conquest, the gallant and ambitious duke himself conducted the first journey to the northward, during which his hands were so severely frozen that two of his fingers had to be amputated. Upon his return to headquarters he dispatched Captain Cagni on a sledge journey with three supporting parties. These parties returned to the ship following a prearranged schedule, but Cagni and

his three companions did not appear. Three months passed and the duke despairingly gave them up for lost. A rescue expedition was sent out to determine their fate.

When Cagni had been gone just 104 days a sentinel on the outpost of the duke's camp sighted four men staggering through the snowdrifts toward the base.

"Cagni! Cagni! Back from the grave!"

Cagni's eyes were set; there was deep emotion in his faint voice. "Eighty-six degrees and thirty-four seconds," he said. "We reached 86° 34′."

On April 25, 1900, the Italians had planted their flag at the farthest north—an advance of 29′ over Nansen—and the world's record for the first time had passed to Italy. The men in camp were stunned. Then, shaken with emotion, they broke into wild demonstrations, clasping Cagni in their arms and kissing him fervently. But Cagni fell exhausted among his comrades. What heroic suffering the victory had cost him! Only seven of his dogs survived, and these were reduced to skin and bone. Others had been killed and eaten by the four desperate men. Even the grease from the bodies had been used for cooking in their one tin pot. Their primus stove was gone, their sledges were broken, their tent was in rags. Their sleeping bag had been thrown away to reduce weight.

Cagni himself had frozen his hand and suffered almost unendurable agony. His suffering had become so great that he was forced to amputate two of his fingers himself with an old pair of scissors. During the return march, which had taken sixty days, the traveling had been so difficult that the men could scarcely make sufficient progress to keep up with the backward drift of the ice floes over which they traveled. After a hard day of sledging they would often find that although they had covered twenty-

five miles in their journey the drift had carried them backwards almost an equal amount, so that they were within a few miles of their starting point.

His purpose sufficiently well accomplished, Prince Luigi freed the "Stella Polare" from her long imprisonment by blasting with gunpowder and dynamite. Her engines reconditioned, she steamed homeward for sunny Italy, where a wild and tumultuous celebration awaited her.

Again without knowledge of what had taken place, Peary was driving away at the arctic barricades. His position as an explorer was now on a perfectly solid basis. Behind him was the support of the Peary Arctic Club, which he had organized, with the distinguished Morris K. Jesup as its president. He had sailed to the North in the yacht "Windward," placed at his disposal by Mr. A. C. Harmsworth, who later became Lord Northcliffe, of London. Through four terrific years, from 1898 to 1902, he hammered at the barriers, to strike at the pole itself.

In the first winter ice did not permit his entry into Melville Bay, and he established headquarters at Fort Conger, where Greely had wintered before him. Then came the most disheartening accident of his whole career. While on a prospecting sledge journey he encountered temperatures lower than 63 degrees below zero, and his feet were so badly frozen that it nearly cost him his life. His faithful Eskimos lashed him on the sledge, covered him with furs, and plunged desperately for camp. They made the 250 miles in eleven days To save his legs, Peary's toes were amputated, only two of them being left, and he passed the rest of the winter in a nightmare of suffering.

Captain Bob Bartlett, who remained with him during the tragic four years, records: "His feet were in terrible

condition. Flesh over the bones was raw and bleeding. He had to walk through pools and streams of icy water which left his footgear soft as pulp. I asked him how he could stand it, but he only said, 'One can get used to anything, Bartlett.'"

"Go on!" was Peary's irrevocable command as he drove his dog sledges forward, suffering with his wounds. In his determination he repeatedly risked his own life and that of his native followers over the worst ice ever encountered. The Eskimos grew to fear him and to call him mad. Eskimo women pleaded with their husbands not to go with him, and bade them good-by with tears in their eyes, never expecting to see them again. One Eskimo woman came to Bartlett and asked him to look after her man personally. "You know him Big Chief no care for man, dog, nor evil spirit—just soon kill us as not," she pleaded.

Fate decreed that Peary should get no farther than 84° 17′ N. during the four years. He broke down in discouragement and wrote in his diary: "The game is off. My dream of sixteen years is ended. I have made the best fight I knew. I believe it has been a good one. But, I cannot accomplish the impossible."

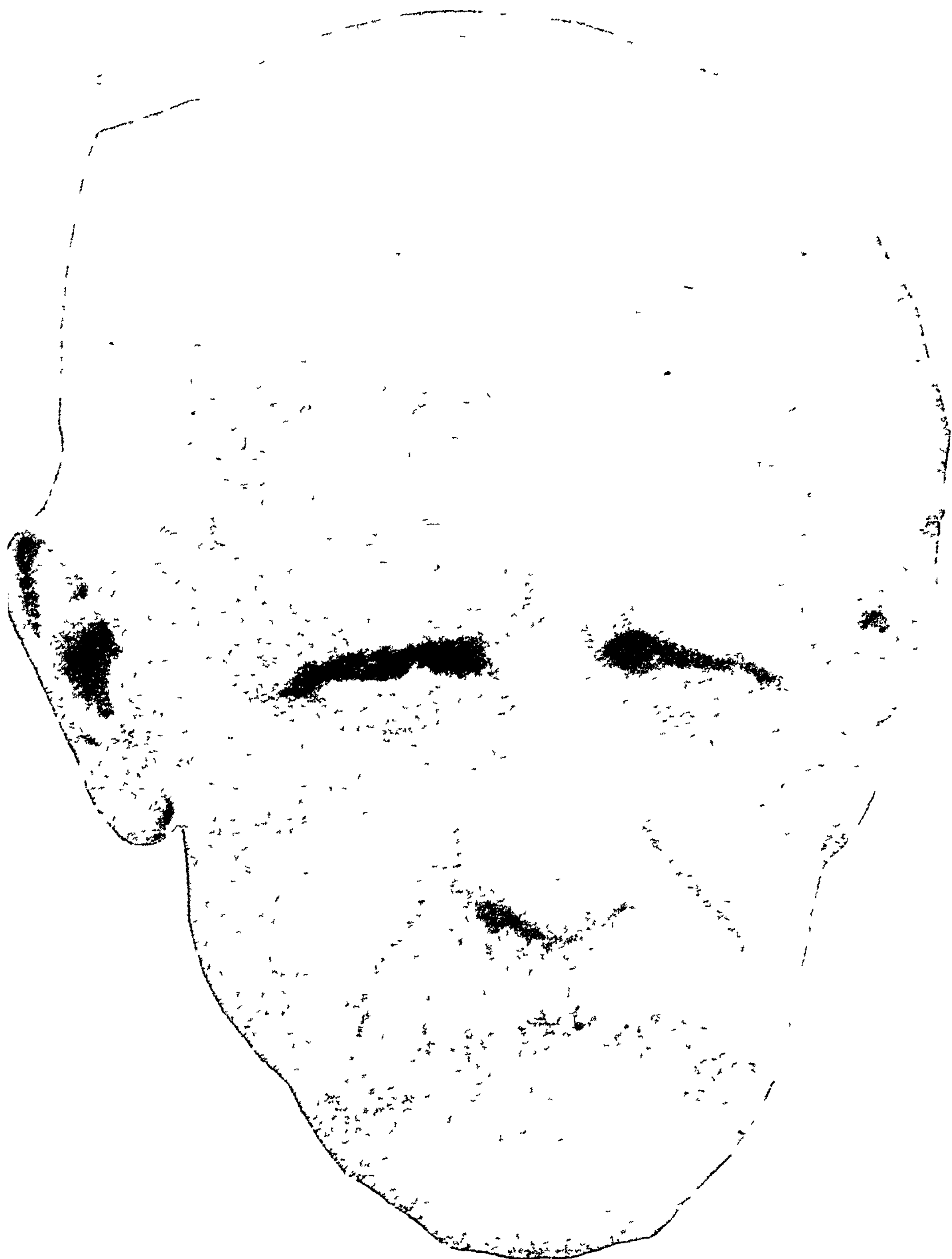
Meanwhile, back in the United States, the continuing demand for a man who could reach the pole had aroused the interest of William Ziegler, a wealthy citizen of New York who consented to finance an expedition in which money was to be no object. Evelyn B. Baldwin, who had formerly sailed with Peary, was selected as leader and commander. Three ships were loaded with supplies. "Floating hotels," they were called, for never did ships have such luxurious profusion of food and equipment. Instruments for scientific work of every kind were provided, "including small

balloons with releasing devices for depositing records when the ground was reached, buoys with records to be sent floating back to civilization by the currents of the sea, searchlights, and wireless telegraph. . . . There were 320 dogs, and 15 ponies in charge of 6 expert Russian drivers. The personnel consisted of 42 men—17 Americans, 6 Russians, and 19 Norwegians, Swedes, and Danes."

The Ziegler expedition left Tromsö, Norway, in 1901. On the trip "internal dissension" rent the party, and by the time they made their landing at Alger Island tempers were at fever heat. One short journey was attempted but the men who had been sent out turned back soon after the start. The dogs contracted a canine disease and died by the scores. The expedition was called off.

Undiscouraged by the unfortunate outcome of the attempt, Ziegler was adamant in his decision to regain the record for America. A second expedition under Anthony Fiala was sent out with Captain Edwin Coffin, of Edgartown, Massachusetts, an experienced whaling captain, as navigating officer. The expedition left Trondhjem, Norway, in the "America" in 1903, and under the able seamanship of Captain Coffin the "America" made the highest northing any vessel under steam had ever made, reaching 82° 4′ N. She was fated, however, to disaster. Unparalleled storms lashed the ice-strewn seas into foaming mountains which hurled themselves upon her, beating her unmercifully with huge cakes of ice and straining every timber and rivet in her hull. In a howling January gale she disappeared and was never seen again. Men recalled afterwards that her name had been changed before she left Norway.

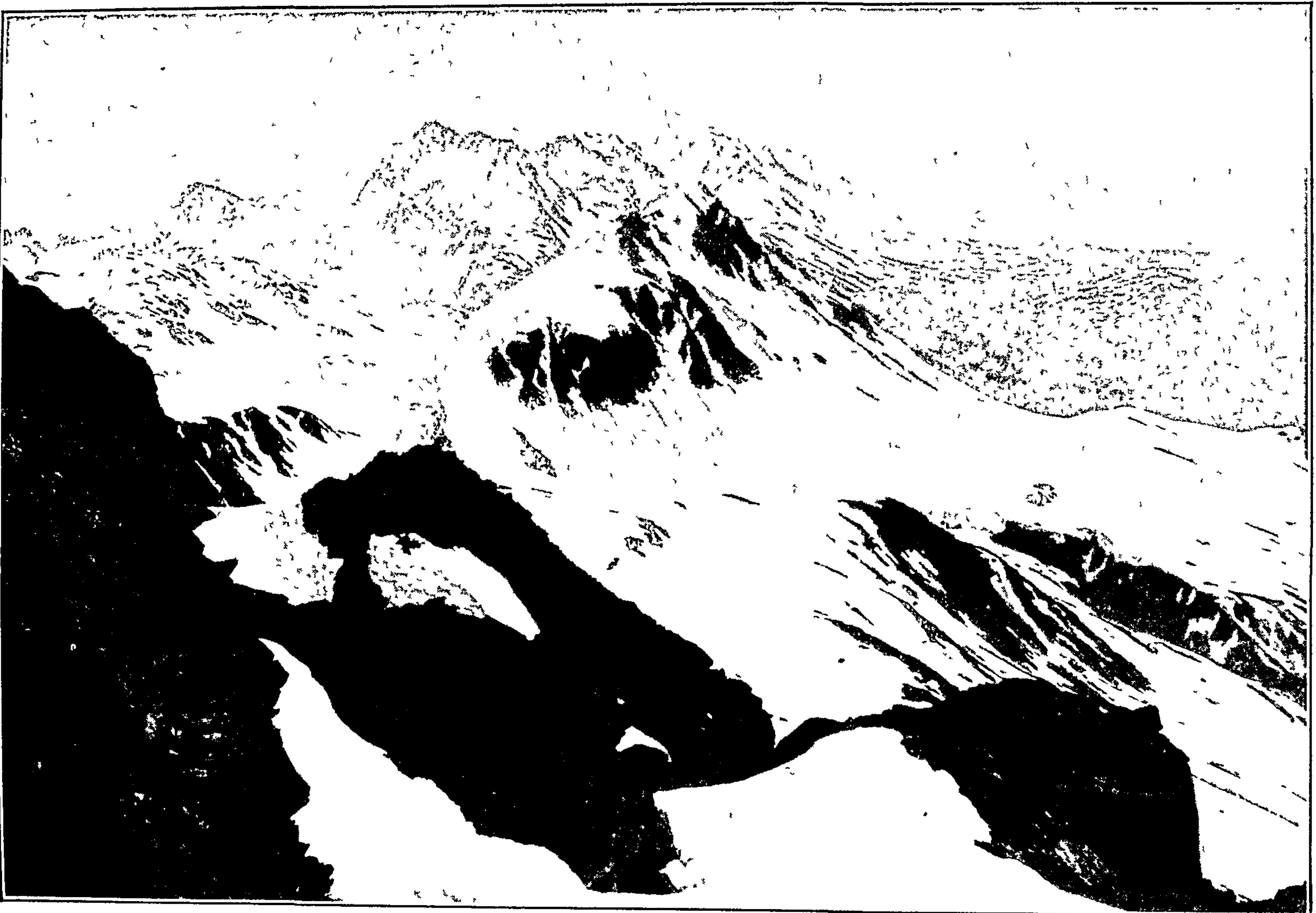
Her men, who had landed on the coast of Teplitz Bay, struck out toward the pole, but the ice, which was broken,



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WORLD-FAMOUS OLD VIKING, FRIDTJOF NANSEN

His great explorations in the Arctic covered nearly half a century



GIANT SENTINELS THAT CHALLENGE THE EXPLORERS

Mountains that stand as barriers at the gateways to the Arctic. This photograph was taken in Upper Alaska, where Wilkins "hopped" over the top of the world

was impassable and the hapless explorers were forced to return to camp. A relief ship, the "Terra Nova," brought the party back to America in 1905.

While Peary despaired, yet another expedition was preparing in Norway. Young and hardy Roald Amundsen, whose strong face was to be lashed into furrows by arctic and antarctic gales and whose hair was to be whitened by adventure, set out from Christiania, Norway, in 1903, in a small forty-six-ton whaling bark, the "Gjöa," with Godfred Hansen as his second mate, and a crew of six men. He was provisioned for five years. Starting from the Atlantic Ocean, he had determined to sail through the Arctic to the Pacific, making a sledge journey on the way to fix scientifically the exact location of the magnetic pole.

Very slowly the "Gjoa" plowed its way into Peel Sound to a point so near the magnetic pole that the compass ceased to work altogether. Seeking protection in Petersen Bay at the top of King William Land, Amundsen and his men were imprisoned for two years while they made the precise study of magnetic conditions which their situation afforded. They built a rude observatory entirely without iron, since iron might disturb the magnetic records. Copper nails were used, and the observers clothed themselves in deerskins without metal buttons, carefully removing all keys, knives, and other metal articles, from their pockets before going in to read the instruments. The series of daily readings which Amundsen made over a period of twenty months or more constituted the most important work ever done on magnetism. Eventually, on April 2, 1904, he reached on a sledge the exact position of the magnetic pole and set up cairns over its location He found its location still in the spot discovered by Ross—70° 5′ N., 96° 46′ W.

Having accomplished one object of his mission, Amundsen weighed anchor and sailed on through Etta Sound, the narrowest and most tortuous stretch of the entire westward passage. Continuing through Victoria Strait, he proceeded "through Dease Strait and Coronation Gulf out into Dolphin and Union straits . . . and on the morning of August 25, 1904, sighted Nelson Head, a tall, imposing headland" in the Pacific Ocean. Amundsen's task was completed. He had sailed for the first time entirely through the Northwest Passage.

In San Francisco he was hailed with triumph, and the historic little "Gjöa" was given to the city and placed in the park for public exhibition, where it lies to this day.

Chapter XV

THE AMERICAN FLAG IS PLANTED AT THE NORTH POLE

TIME and a little thought must have healed Peary's broken spirit, for once back in the United States he again expressed his grim determination to reach the pole. Carefully checking his past experiences, he came to two important conclusions: first, that he must establish a base much nearer to the pole itself than he had been able to do on his former expeditions; and second, that a new ship must be built for the purpose of crashing its way through the barrier ice. Setting immediately about the necessary preparations, he was greatly heartened by the stanch support of Theodore Roosevelt.

"I believe in you, Peary," Roosevelt exclaimed. "Go get it!" In his enthusiasm Roosevelt lined up many eminent men behind Peary's cause.

For several years, however, it looked as though the obstacles which confronted Peary at home would prove as obstinate as the snow and ice of the Arctic. Although he knew more about arctic exploration than any other living man, and although the American people followed his efforts with interest, he found it so difficult to collect the necessary funds that for a time it looked as though he would never return to the Arctic. He himself put every dollar he owned into the fund and even pawned many of Mrs. Peary's possessions. "We had mortgaged everything in sight," says the loyal Captain Bob Bartlett, who was helping him.

Meantime, aided by the officers and members of the Peary Arctic Club and the vigorous encouragement of Roosevelt, Peary ordered construction of an "ice crasher" with engines that would develop 1,000 horse power. Rigged with sails like a three-masted schooner, and with a hull shaped to rise easily above the pressure of the ice, the crasher was reinforced to withstand the frightful battering of the seas through which Peary proposed to force his way. Appropriately he named it the "Roosevelt."

Disappointment continued to wait upon him, however, and many weary, almost despairing days were spent in the still unsuccessful attempt to raise money. At last Morris K. Jesup and General Thomas Hubbard each gave $50,000, and Peary and Bartlett saw the way open before them. On a sultry day in July, 1905, the "Roosevelt" steamed out of harbor, bound for the polar seas. Bob Bartlett was in command with orders to "buck everything that got in the way."

"We are going to do it this year, Bob!" Peary said.

"Well," records Bartlett in his log, "we jammed her right through the heavy ice of Kane Basin, Robeson and Kennedy Channels, solid floes miles in extent and ten to forty feet thick. We had a lot of Eskimos on board for use as dog drivers on the polar sea. They were so scared they wanted to jump off and run home. Twice they tried to desert with dogs and sledges. But Peary managed to hold them. It was a terrific fight. But we finally won."

Captain Bob, with the crasher, had plowed boldly through to lat. 82° 30′ N.—farther north than any other vessel had yet penetrated. On the coast of Grant Land, at Cape Sheridan, he put in for the winter.

Peary laid down the last of his caches in February and summoned his Eskimos for the dash to the pole. He was

supremely confident. The great work of his life was about to be consummated. His enthusiasm gave his step the spring of youth, and his eyes sparkled with joy as he led the way. But fate had not yet finished testing his metal. What he had already endured was as nothing to what lay in wait for him. Never had winds of such fury howled across the polar sea, driving down upon him masses of ice weighing millions of tons and raising pressure ridges like mountains that were all but impassable. In every direction the ice cracked and split into great channels or "leads" over the sea. As Peary worked forward the channels opened behind him, barring his retreat. They opened before him, making necessary long detours which consumed time and supplies.

Doggedly, Peary drove forward until the world record was taken from Italy and restored once again to America when, on April 21, 1906, he planted the American flag at 87° 6′ N. "This time we'll hold it," said Peary, but he determined to turn back from that point. He said later, "As I looked at the drawn faces of my companions, the skeleton figures of my few remaining dogs, at my nearly empty sledges, and remembered the drifting ice over which I had come, and the unknown quantity of the 'Big Lead' between us and the nearest land, I felt that I had cut the margin as narrow as could be reasonably expected. I told my men that we should turn back from here."

Turning back, in a long, frantic race with death, they worked their way slowly and painfully over hummock, berg, and flow, across thin ice two miles wide that bent and buckled under their feet. Food was so scanty as scarcely to support their strength under the fearful exertion. To Peary, too, to win his race with death meant not victory but defeat. He had failed to reach his goal.

Far back on the ship "Roosevelt," Captain Bartlett struggled with his own difficulties. "Our voyage," he related later, "had been a chapter of misfortunes. Right outside Sydney on the way up, two of our Almy boilers had blown up. Only by luck nobody was killed. Only the Scotch boiler was left. By the time we reached Etah, a north Greenland Eskimo village, the rotten whale meat we had taken aboard down on the Labrador had seeped into the vessel's timbers all along the main deck. Then one of our Eskimos knocked out his pipe, and the first thing we knew the ship was afire . . . the smell of the smoldering whale blubber was suffocating . . . but after a fight we got it out.

"After Peary had left, the 'Roosevelt' was pinched in a bad way up against the land by the main pack. To save her from destruction I had to use dynamite. In my excitement I used too much. I broke the ice all right, but I damaged the ship. Three days later she got another wallop that sheered two of the propeller blades off and ripped away the rudder post. I went below and found a big hole in the ship's bottom. It was big enough for a small boy to climb through. The ship was groaning from the pressure like a human being in pain. . . . As soon as I had her afloat and the leak stopped I started the engine to back clear. I didn't know then that two of the propeller blades were broken, and one of them jammed and nearly cracked the shaft. . . . Right in the middle of all it began to blow and snow. We had a regular blizzard from the north . . . but we didn't dare stop work. . . . Forty-eight hours later the pressure and the wind stopped. We had saved the ship but we were thoroughly exhausted. . . .

"Through it all I kept worrying and wondering where on earth Peary and his Eskimos were. A few days later

they limped in exhausted. Peary went below for a rest. I didn't bother him much with a description of our troubles. The first thing he said to me next day was, 'We've got to get her back, Captain; we're coming again next year!''

"Godfrey Mighty!" Captain Bob exclaimed afterwards, "I never wanted to see that place again—but it was like him to be always planning for the future."

The voyage home was a series of disasters. Five times the rudder was carried away. One storm after another beat upon the already rickety ship. Water flooded the holds, ashes choked the pumps. Aboard there was nothing but misery and wretchedness. Yet through it all Peary sat at his cabin table figuring how he could get the funds to go back again for the eighth time.

Arriving in New York, he was greeted with the news that his chief financial backer, Morris K, Jesup, was dead. For a year he and Bartlett tried in vain to raise funds to repair and outfit the "Roosevelt" for a return trip. Bartlett finally went back to Newfoundland on a sealing voyage but Peary plugged away until at last the day was saved: General Thomas Hubbard stepped again into the breech with a large check.

"Get the pole, Peary!" President Roosevelt ejaculated. "Get the pole this time."

Peary was now fifty-three years old, and as he bade farewell to his wife and daughter both felt that this was the last time he would ever go to the Arctic. They prayed together that this voyage might be successful. Henson, the negro, and Ross G. Marvin, Peary's secretary, were still with him. The crew were for the most part experienced sealers from Newfoundland. Those on board numbered altogether twenty-two persons.

With a good ship and a fine captain, Peary knew that all would be well until he started his dog-sledge dash into the Unknown. "The 'Roosevelt' is a good ship," he said, "because she was built of American timber in an American shipyard, engined by an American firm with American metal, and constructed by American designers—and, of course, commanded by an American; and we are to sail north by the American route." His pride in Captain Bartlett knew no bounds: "One may know a man better after six months with him beyond the arctic circle than after a lifetime of acquaintance in cities. There is something in those frozen spaces that brings a man face to face with himself and his comrades. If he is a man the man comes out; and if he is a cur the cur shows as quickly."

They sailed north through the graveyard of ships until the civilized world was left behind and Peary was face to face with his final struggle. Standing on the deck, with his back to the world and to all he loved and his face toward the impregnable and mysterious goal of the ages, he felt awed yet confident that this time he would win the fight against all the powers of darkness and desolation.

From Cape York his friends the Eskimos put out in their frail kayaks to greet him. Despite moments when his enthusiasm carried him to harshness, Peary always thought of the Eskimos as his "children." For almost a quarter of a century he lived with them and cared for them. Time after time he saved whole villages from starvation. Wood for their sledges, iron and cutlery, cooking utensils, needles and matches—everything that made their lives less arduous—he had given to them.

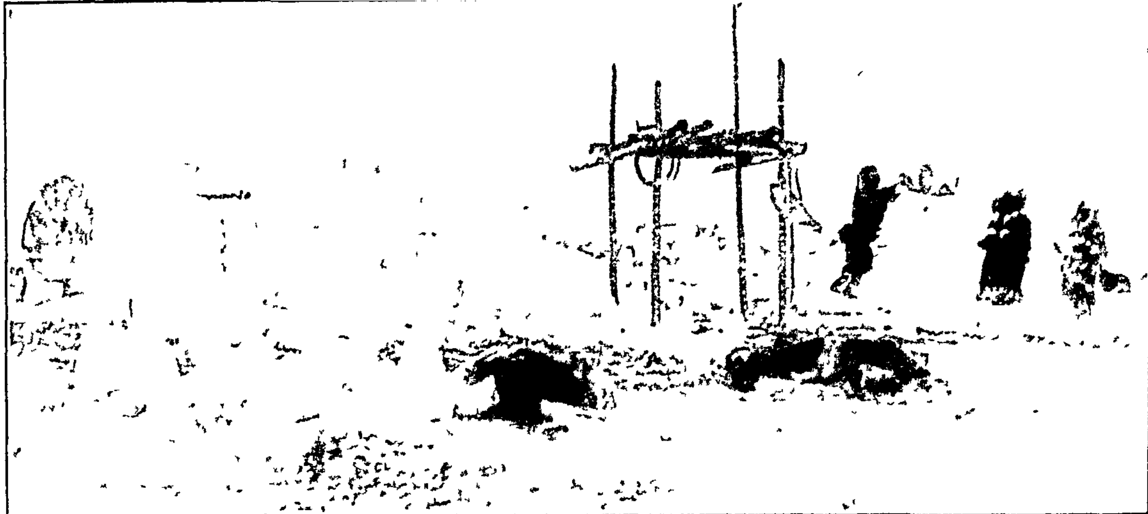
He understood these "children of brute nature." "When one died they believed another came in the form of a baby to take his place. Trial marriage has always



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POLAR BEARS ON DRIFTING FLOES A HUNDRED MILES AT SEA

The greatest enemy of arctic explorers, they exhibit cunning in finding and breaking open caches of food, no matter how well protected. These polar bears are ferocious and of enormous strength



© Herbert Photos

LIFE BEYOND THE ARCTIC CIRCLE

The whole Eskimo family helps in the construction of an igloo Eskimos cache their seal meat to protect it from the ravages of wolves and bears.



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NATIVE "OOMIAK" (CANOE) MADE OF SEALSKIN

No water can enter even in the roughest sea A single tear in the frail skin sinks the craft instantly.



© Herbert Photos

TWENTY-SIX THOUSAND SEALS KILLED EVERY YEAR

The United States Government estimates the value of these seals on St George's Island in the Bering Sea at $84,000,000

been the rule, a man and a woman live together for a while to test their congeniality. If not satisfied they take another mate. After they are satisfied, however, they usually settle down and make no more changes." No chiefs ruled among them, and they were without belief in a God. Their lives were so hard, so constantly beset by the elements, that their entire religion consisted of a belief in evil spirits and a "Great Devil" whom they must constantly propitiate. When in distress they always appealed to their dead ancestors to help them. When the ice pressed hard against the ship they called on their "dead father" to push it away. To them Peary partook of the character of both chief and God.

Accompanied by these simple people the "Roosevelt" stopped at Domunnui to take on 49 Eskimos for the trip and 246 dogs. So far the journey had been without accident. One of the Eskimos declared it to be his opinion that "the devil must be sick or fighting with his wife." Reaching Robeson Channel, however, the battle commenced. Again and again the "Roosevelt" charged the ice. Her steel-shod prow split a floe squarely in two. With the whole force of her thousand-horse-power engines she jumped and bucked and smashed her way through, Bartlett aloft in the crow's-nest shouting down his directions, talking to the ship in exciting moments as though she were alive.

"Rip'em Teddy!" he would yell. "Bite'em in two! Go to it! That's fine, my beauty! Now—hit'em again—hit'em again!"

They anchored safely at Cape Sheridan in September 1908. The long winter wore slowly away, until in February all was in readiness for another drive. Six supporting parties were sent out in advance, the last under the direction of Bartlett. On Washington's Birthday Peary himself

left camp. The weather was thick with snow. The temperature was 31 degrees below zero. Peary had with him two Eskimos, two sledges, and sixteen dogs. The rest of his men and equipment he would pick up from the advance parties as he went along, for in the field ahead of him were now 7 officers, 19 Eskimos, 142 dogs, and 28 sledges.

Over the trail already broken for him Peary passed the Norwegian record on March 23; on the next day he passed the Italian record; and on the 28th of February he passed his own record at 87° 6′. The pole lay within striking distance. At 87° 46′ N. he joined the last of his advance parties under Bartlett and chose the final group to go with him to the pole. As supplies diminished, he had sent back one by one the white men of the party until by now Captain Bartlett was the only white man left with him. At 87° 48′—at that moment the highest point north ever reached by man—Captain Bob too was turned back to take charge of the homeward march of the Eskimos. Peary, with Henson the negro and four Eskimos, headed north on the final drive of 135 nautical miles. He planned to make it in five marches averaging twenty-five miles each.

Up to this time, Peary had purposely kept in the rear of his advance parties, saving himself all exertion and conserving his strength for the ultimate miles. Full of vigor, buoyed by hope, he took his place in the lead. "The years seemed to drop from me," he recorded. "I felt as I had felt fifteen years before when I headed my little party across the Greenland ice cap."

The night of April 5 found him with but one more march ahead of him. He went to sleep with a prayer for "three more days of good weather." His prayer was granted; the weather, which on all former expeditions had been as bad as possible, now seemed to smile on all his

efforts and at ten o'clock in the forenoon of April 6, 1909, his march came to an end. Observations showed 89° 57′ N. Peary was within sight of the north pole. "And yet," Peary recorded, "with the pole actually in sight I was too weary to take the last few steps. The accumulated weariness of those days and nights of forced marches and insufficient sleep seemed to roll across me all at once. I was too exhausted to realize for the moment that my life's purpose had been achieved . . . and I turned in for a few hours . . . sleep.

"The first thing that I did on waking," he continued, "was to write in my diary. 'The pole at last! The dream of the centuries. My dream and goal for twenty years. Mine at last! I cannot bring myself to realize it. It seems all so simple and commonplace.'"

After thirty hours of marching and countermarching in all directions to make sure he hit the precise spot in case of error in his observations or his instruments, Peary tried to sleep but found it impossible. He was too exhilarated with the great accomplishment. His Eskimos, too, caught the excitement and could not sleep. The goal was won! They stood at last on the precise spot—Parallel 90°!

Peary told the story: "We planted five flags at the Top of the World. The first one was a silk American flag which Mrs. Peary gave me fifteen years ago. That flag had done more traveling in high latitudes than any other ever made. I carried it wrapped around my body on every one of my expeditions northward after it came into my possession, and I left a fragment of it at each of my successive 'Farthest Norths.' It was also considered appropriate to raise the colors of the Delta Kappa Epsilon fraternity; also the World's Ensign of Liberty and Peace; the Navy flag and the Red Cross flag . . . and we all gave three

rousing cheers . . . Henson leading and timing the Eskimos. I deposited a glass bottle containing a strip of my flag and the record—

"90° N. Lat., North Pole, April 6, 1909. I have today hoisted the national ensign of the United States of America at this place, which my observations indicate to be the north pole, axis of the earth, and have formally taken possession of the entire region, and adjacent, for and in the name of the President of the United States of America. . . .

ROBERT E. PEARY
United States Navy"

Peary had reached the pole! But he felt no surety that he could get back to civilization. High winds could destroy the trail by shifting the ice or could within twelve hours turn the region behind him into open sea. At four o'clock on the 7th of April he and Henson and the Eskimos turned their steps toward the south and home. Nature had decided to reward the man who had suffered her worst blows in patience, and no storms arose to impede his southward march. The dogs scudded along before the wind, making on some days as many as thirty miles over the old trail. It was a case of "big travel, little sleep, and hustle every minute." The return was accomplished in sixteen marches.

The entire journey from land to the pole and back again occupied fifty-three days, or forty-three marches. On their arrival at Cape Columbia, they slept for almost forty-eight hours, rousing only now and then to eat and drop back to deep sleep. Sad news awaited them at the ship. Marvin was dead. He had been the only white man in the supporting party of which he was in command. He had gone on ahead of the Eskimos over thin ice and, so the Eskimos had reported, had met his end alone by drowning. George Palmer Putnam on a later trip to Greenland

questioned one of these Eskimos, who confessed to having murdered Marvin for fear that he might go on alone with the supplies and leave them to starve. This, happily, Peary never knew. Grateful to his Eskimos, he made them multimillionaries with gifts of rifles, shotguns, cartridges, shells, reloading tools, hatchets, knives, and, later, whaleboats, tents, and other treasures. They were taken back to their settlement on the Greenland coast, where they remained the richest Eskimos in all history.

On the way home the "Roosevelt" stopped at Etah, where Peary and his party killed more than seventy walruses for food for the tribe during the coming winter. On September 5, Peary sent over the wire from Indian Harbor a message addressed to Mrs. Peary:

> Have made good at last. I have the pole.
> Am well. Love.

In America the event created, of course, intense excitement. The United States had ended the battle forever and the nations of the world joined generously in the public rejoicing. "I knew Peary would do it," President Roosevelt exclaimed. "I knew he would do it. You couldn't stop him." As the "Roosevelt" steamed into Battle Harbor, reporters from the press of the world were waiting for it, and wires flashed the story to every part of the globe.

Peary lived to be acclaimed by the entire world as the "Discoverer of the North Pole." The United States Government and many scientific bodies bestowed upon him medals and decorations. The Government made him a rear admiral. And finally, when the end of his career came in Washington, a nation went into mourning. Draped in the flag of his country the noble old explorer was buried in the National Cemetery at Arlington, and the salute of guns boomed in tribute over his grave.

Chapter XVI

THE SEARCH FOR THE BOTTOM OF THE WORLD

BEHIND Admiral Richard Byrd in the Antarctic is the story of twenty centuries and more. Ancient Greek geographers believed in a great southern continent, which they called "Terra Australis." Ptolemy, Strabo, even Aristotle, defended the theory that a great and valuable country lay far to the south, and there are records of the early Phœnicians having circumnavigated Africa.

The first authentic discovery of southern land, however, followed the adventure of Pedro Alvarez de Cabral, the Portuguese admiral, who, in trying to avoid the calms of the equatorial belt, sailed westward in 1500 and found himself upon the coast of Brazil. News of this discovery caused the Portuguese to send out three more ships to confirm the discovery and explore the new region. Amerigo Vespucci went as pilot. After sailing for some distance down the coast of South America, he launched to the southwestward, and in 1501 made a landfall on the coast of what is now known as the island of South Georgia. He sailed along the coast of the island for eighty miles, but his discovery was practically forgotten in the years that followed.

The story of the South in reality begins in 1519 with Fernando Magellan, a navigator under the flag of Portugal. Wounded, maimed for life, and falsely accused among his fellow countrymen, he renounced his nationality and appeared at the court of Spain to offer his services for

greater conquests. The sturdy adventurer declared himself ready to sail southward into the antarctic circle as far as 75° S. to discover the Southwest Passage to India. Repudiating the arctic route he proposed to establish an antarctic route.

The armada of five vessels, only one of which was to return, put to sea in 1519 under the flag of Spain. At the last moment, Faleiro, Magellan's partner in the enterprise, stayed behind because he had had his horoscope cast and had been told that the venture would prove fatal to him. Magellan sailed on the voyage which was to be as full of tragedy as it was of triumph.

Crushing a formidable mutiny as he cruised southward along the coast line of the New World, Magellan paused to study the natives of the regions he discovered. He made the acquaintance of a strange people, whom he called "Patagonians" ("Big Feet"), "whose great size and lofty stature he magnified to gigantic proportions."

At the "Cape of the Eleven Thousand Virgins," the long-sought passage through the antarctic seas loomed before him. Through this tortuous strait, walled by ice-clad mountains, he guided his fleet for thirty-eight days. One vessel deserted. Captains and pilots of other vessels held council, plotting desertion. Magellan sailed on. Here, at the farthest south then ever reached by man, he sighted the flaming volcanic islands which he named Tierra del Fuego, the Land of Flame. The inhabitants of these farthest south lands he found to be lowest in the scale of humanity, more ignorant than the Eskimos, incapable even of contriving protection against the rain. Stunted, with crooked legs and no beards, these cannibals fed on putrid seal flesh and would sell a child for a pearl button. They would kill and eat their old women before they would

their dogs because "their dogs catch otters and their old women do not."

On through the Strait of Magellan they sailed, along the forbidding land "stark with eternal cold," until at last the expedition entered the "Great South Sea," first sighted by Balboa. Gentle and steady winds drove the fleet across its immeasurable expanse for ninety-eight days, in commemoration of which Magellan named it the "Pacific." But as they sailed, the worst fears of Magellan began to be realized. Starvation crept upon them; what remained of the food was spoiled. "Ox hides, sawdust, and rats had to be eaten . . . another ship was lost."

Then, as if promising an interlude from their sufferings, beautiful green islands appeared on the horizon. The Ladrones Magellan named them, "from the thievish habits of the natives." Then came Guam, and at last the fateful Philippines, his first discovery of "dense habitation." It was the last discovery of the great navigator.

In a fight with the natives, Magellan was killed and his admirals murdered. The survivors, burning one of the remaining ships, made their way to Borneo and the Molukkas. Another ship, which sprang a leak and became unseaworthy, was abandoned with its crew on an island.

The last of the fleet, the "Vittoria," sailed on its voyage alone. Heavy seas, scurvy, starvation made a horror of their voyage into the Indian Ocean and around the Cape of Good Hope. After three years the battered vessel limped into the port of Seville with only thirty-one men, but these men who came home in 1522 were the first men ever to circumnavigate the globe.

The lust for exploration continued but, with the two great American continents still to be charted, few explorers turned to the Far South. It was a half century after

TAKING POSSESSION FOR UNITED STATES—1909

American flag carried by the famous explorer on every expedition for fifteen years. Five men reached the north pole with Peary—Matthew Henson (colored), Ootah, Egingwah, Seegloo, and Ookeah (Eskimos), five sledges, and thirty-eight dogs

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DOGS THAT CARRIED PEARY TO NORTH POLE, ON BOARD "ROOSEVELT"

On 27 forced marches averaging 25 miles a day of 12 hours traveling



© *Brown Brothers*

"THE POLE AT LAST"—THE PRIZE OF THREE CENTURIES

"My dream and goal for twenty years I can hardly realize it" Words written by Admiral Robert E Peary in his diary, April 6, 1909, while standing at the north pole (Meridian 90)

Magellan's famous expedition that Sir Francis Drake on one of his many voyages penetrated as far as 56° S. in 1578. Without troubling to discover them, the various nations set up claims to the ownership of the unknown lands in the South. The south pole itself and the "Great Southern Continent" were solemnly annexed and taken possession of for the king of Spain by Pedro Fernandez de Quiros in 1605. Having discovered the largest island of the New Hebrides, he erroneously supposed that he had landed on the south polar continent. Abel Ganszoon Tasman, the Dutch navigator who set out in search of this continent, discovered Tasmania in 1642 and the most northern island of the New Zealand group in latitude 49° S., establishing a farthest south record for his time. Australia, then called New Holland, was thought to be a part of this southern continent and was so indicated on the maps in 1660. Dirk Gerritsz, a Dutch captain, on the "Blijde Boodschap," was carried to the south in 1599 by a storm and claimed to have reached latitude 63° S. He discovered Gerritsz Archipelago, or what has since been found to be islands off the western coast of Antarctica.

In 1684, Captain Cowley, an Englishman, announced that he had made a new farthest south record. In his log he wrote: "On the 14th day of February, we were chusing of Valentines, and discoursing of the intrigues of women, when there arose a prodigious storm, which did continue till the last day of the month, driving us to the latitude of 60° 30′ S., which is farther than ship hath sailed before south [he ignored the Dutch claim], so that we concluded the discoursing of women at sea was very unlucky and causeth storms . . . the weather in that latitude was so extreme cold that we could bear drinking 3 quarts of brandy in 24 hours each man, and be not at all the worst for it."

France was the first nation to send officially an expedition into the southern waters. In 1738, the French monarchy sent a young naval officer, Pierre Bouvet, south in command of the frigate "l'Aigle." He was the first man to see the large tabular icebergs of the Antarctic, and to report the finding of the skua gulls, whales, and sea wolves. He set up the mark of 54° 10′ S. and claimed the discovery of land which he named Cap de la Circumcision.

Nearly two decades later, in 1756, Spain sent out Guyot in the "Leon." He returned claiming the discovery of land in 55° 10′ S., which is now supposed by authorities to be South Georgia Island. In 1772, Yves Joseph Kerguélen-de Trémarec, for France, discovered Kerguelen Island, and when his discovery was discredited on his return to France, he fitted out three ships and went back, taking possession of it in the name of the French king On this second expedition he took so many witnesses that disbelief in his discovery became impossible. At about the same time, Dufresne and De Clesmeur, for France, discovered the islands now called the Marion and the Crozet Islands.

A new era in antarctic exploration had begun in 1768 with the voyage for England of James Cook. Among other objects, this voyage was undertaken in order that "the astronomers might observe the transit of Venus from the island of Tahiti." Voyaging for two years and seven months, he circumnavigated for the first time New Zealand, which was to be the base for the antarctic explorations of the future. When Cook returned, the questions arising from the discoveries claimed on this voyage led the English Government to send him out again with instructions to "solve once for all the existence of the southern continent."

Captain Cook set out in 1772 to circumnavigate the globe at high southern latitudes, "making such traverses from time to time, into every corner of the Pacific Ocean not hitherto examined, as might finally and effectually resolve the much agitated question about the existence of a southern continent in any part of the Southern Hemisphere, to which access could be had by the efforts of the boldest and the most skilful navigation." This was the first official British antarctic expedition.

With his two ships, the "Resolution" and the "Adventure," he launched into the unknown seas on a voyage that was to last more than three years. At one time his records show that he sailed for 117 days, a distance of 3,360 leagues, without once catching sight of land. He met, however, many floating "ice islands," and soon afterwards his progress was stopped by a large field of ice which reached in every direction as far as he could see. The sight of birds, as well as the great quantities of ice, convinced him that land lay somewhere to the southward. He determined to return to England, having reached the conclusion that "the Great Southern Continent, if it exists, must lie within the polar circle, where the sea is so encumbered with ice that the land is rendered inaccessible . . . ."

"No man would ever venture farther than we have done," he reported. "The lands which may lie to the south will never be explored. Thick fogs, snowstorms, intense cold, and everything beside that can render navigation dangerous, must be encountered, all which difficulties are greatly heightened by the inexpressibly horrid aspect of the country. It is a country doomed by nature never once to feel the warmth of the sun's rays, but to lie buried in everlasting snow and ice. Whatever ports there may be on the coasts, they are almost entirely covered with frozen

snow to a vast thickness. If, however, any one of them should be so far open as to invite a ship to enter it, she would run the risk of being fixed there forever."

Cook's explorations gave England the honor of the first crossing of the antarctic circle in history, January 17, 1773. He first circumnavigated the earth in latitude 50° S. and then struck out for the farthest south. Crossing the circle, he drove in as far as 67° 15′ S., where he was stopped by the ice. In five terrible drives across the circle in a year of effort, he fought against the ice bulwarks until at last, on January 30, 1774, he reached 71° 10′ S. and established a farthest south record for the world. Cook's voyage holds rank as the greatest since Magellan and entitles him to a place among the great navigators of all time.

The American flag first appeared in the Antarctic at the mastheads of the vessels of the sealing fleet from Connecticut. As early as 1800 these hardy seamen are known to have visited Far South waters in search of their prey. How far the daring old sealers went no one will ever know, for they guarded their secrets jealously. If they found an island on which there were numerous seals, the discovery meant a fortune to them which would certainly be lost should the information become known to their rivals in the sealing fleet. It is known, however, that Captain Swain of Nantucket in 1800 discovered an island in lat. 59° S. and that this same island was later found by Captain Robert Macy, also of Nantucket, who reported that it abounded in "sea dogs" and was perpetually covered with ice and snow. Searching for new sealing grounds, Edmund Fanning and Captain James Sheffield, from Stonington, Connecticut, discovered a group of islands in 1819, one of which they named Fanning Island and upon which they reported at least 50,000 seals. They returned

home with a full cargo of the richest and most valuable furs. The discovery of this island was subsequently claimed by Captain Smith for England. He declared that he had visited these islands in 1817 and named them the South Shetlands, which name they still bear today.

There is record, too, of the appearance in the southern area of a stalwart young American, Captain Nathaniel Palmer, who was in command of the "Hero" on a sealing voyage in 1821. Seeking fortune, he reached 68° S. While he was sailing out from the ice pack he suddenly ran between two ships of war. He hoisted the American flag and saw the flag of Russia flying from the two big vessels. A small boat was sent from one of the warships with an invitation for the American captain to come aboard. Young Palmer accepted and on the deck found himself saluted by the celebrated Commodore Fabian von Bellingshausen, who was in command of a frigate and a sloop of war on a voyage of discovery for the Russian Government.

The commodore was astounded to find young Palmer in a little bark in these unknown waters. Supposing him to be lost or driven far out of his course by storms, the commodore asked him if he had any knowledge of these waters or of any land near by.

"Why, yes," replied the young captain. "If you desire it, I will pilot you over to Yankee Harbor, in the Shetland Islands, where you will find five vessels out from Stonington, Connecticut, under the command of my superior, Captain Pendleton."

The Russian officer accepted. He did not conceal his amazement at finding a whole fleet of American vessels in what he had supposed to be unknown waters. Captain Palmer informed him of high mountains which he had seen far to the southward. These the gallant Von Bellingshausen

later visited, naming the country Palmer Land in acknowledgment of its earlier discovery by the Americans. On this voyage the commodore also named an island Peter I in honor of a former czar, and in 1821 planted the Russian flag on Alexander I Land in the name of the czar under whose authority he was sailing. He reached 70°, his farthest south, in January, 1821.

The discovery of land by Palmer in the archipelago of Antarctica was entirely ignored by British authorities, who rechristened Palmer Land as Graham Land when it was rediscovered by Biscoe of the Royal Navy in 1831. The name was changed in spite of the fact that the land had appeared as Palmer Land on charts drawn by English, French, and American geographers for years before Biscoe's voyage.

American authorities unite in giving Palmer the historical position of the first man to land on the Antarctic Continent shortly after it was sighted by Wilkes of the United States Navy, as will be related in the next chapter. Since Captain Palmer for commercial reasons was more interested in keeping his adventure secret than in announcing it, the British authorities, at a distance and lacking access to his records, may be pardoned for ignoring the results of the daring voyages of this intrepid American youth.

Palmer was a sealer, seeking wealth in the southern seas; he laid no claims for exploration. It was for Wilkes on an official expedition from the United States Government to make the first record of the great continent and establish his claim as the discoverer.

Chapter XVII

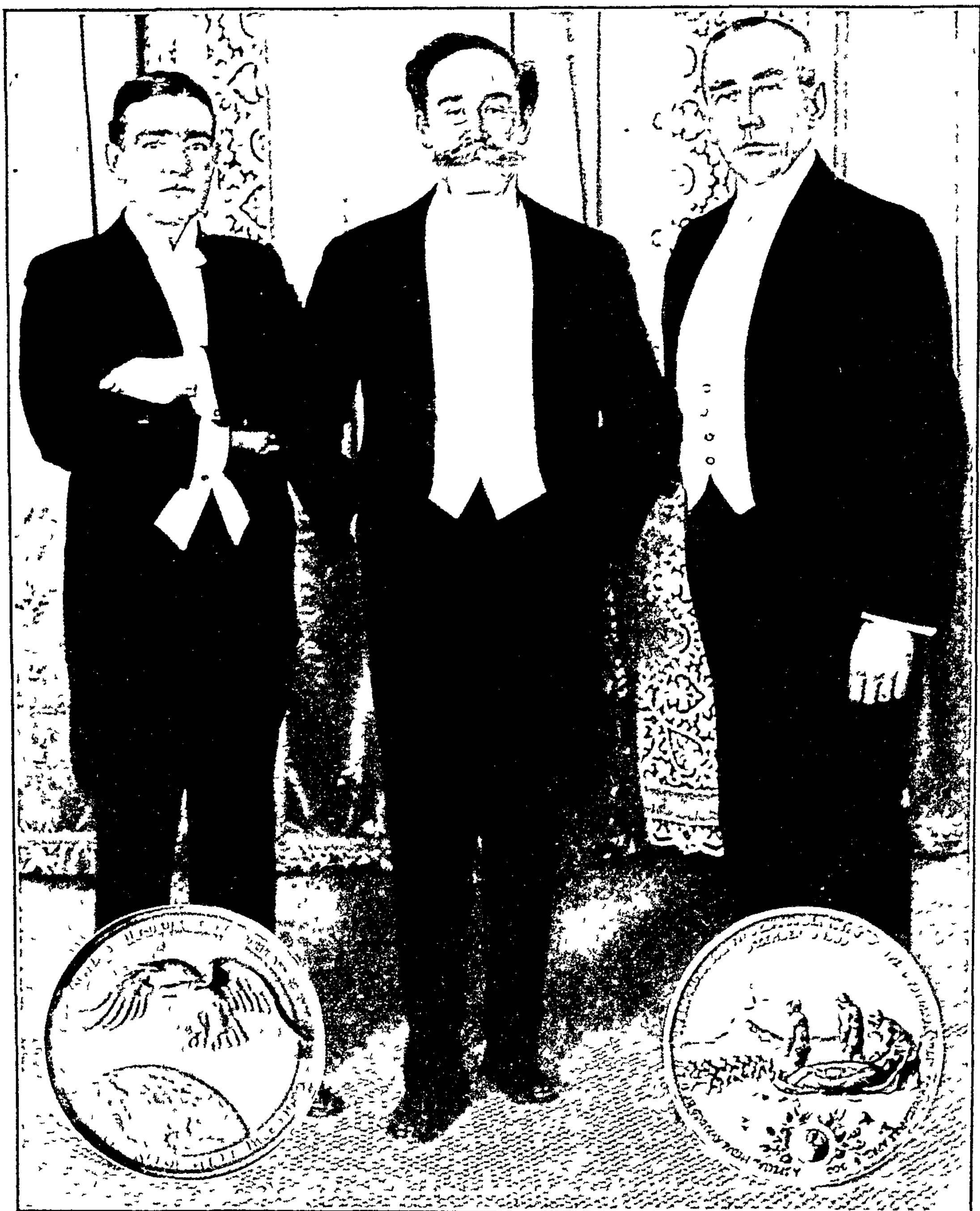
DARING ATTACKS ON THE ICE-LOCKED CONTINENT

THE TALE of the Antarctic for many years continued to be the tale of the sea captains from America and England who combed southern seas for whales and seals. Sealskin and whale oil were their first objects, of course, but the rewards which their governments now offered for new lands for exploration and possession did much to spur them on.

It was on the brig "Jane," accompanied by the cutter "Beaufoy," flying the English flag, that Captain James Weddell first entered the Antarctic. Weddell was sailing for the great whaling firm of Enderby in England, a firm which urged the captains of its fleets to look not only for whales but for new lands as well. Battling his way through the bergs and floes of southern waters, Weddell found himself in an open sea with the islands now known as the Southern Orkney Islands before him. Flocks of birds and large schools of whales met his gaze, convincing him that there was land farther to the south. Sailing south, therefore, through the open sea which still bears his name and which has been the base of many of the great expeditions into the Antarctic in the present century, he was finally stopped by the ice jam at 74° 15′ S., over three degrees farther south than Cook's record and 240 miles nearer to the south pole than any other man had ever before penetrated. This record of Captain Weddell's stood for twenty years.

During those twenty years, hundreds of vessels searched the southern waters, bringing home great cargoes and tales that rivaled those of Marco Polo. Many American seamen attempted to better Weddell's record, some even setting up claims they could not substantiate. Captain Benjamin Morrell, for instance, made four voyages to antarctic waters which he related in a highly colored but unreliable narrative, claiming to have penetrated to 70° S. and to have discovered islands on which he saw no less than nine active volcanoes. The first of these tales to be substantiated was that of Captain James Brown, an American who went to the Antarctic on a sealing voyage in 1829 and whose veracity was unquestioned. He discovered an island which he named Potter's Island, and in a few days another which he called Prince's Island. This latter contained "a volcanic mountain from the top of which smoke constantly issued; and on the lower part was found lava which the volcano had discharged during a recent active period, as it still gave off some warmth. Another island called Bird's Island was found, where many sea tigers were seen and some killed." This animal, which resembled the walrus, was "of great courage and cunning, often attacking the men in small boats when at a distance from their ships."

In England there was a common belief that untold fortune might lie just beyond 74° 15′ S., and this, coupled with the rewards offered by the government, sent many Englishmen much farther south than any whale would ever have enticed them. In 1830, John Balleny, for the Enderby Company, left England and sailed south until he discovered the Balleny Islands in latitude 66° 44′ S. His highest point was 69° S. The smallest of his two vessels, the "Sabrina," was lost with all on board during a violent storm which was encountered in this latitude.



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THREE MEN WHO REACHED THE ENDS OF THE EARTH

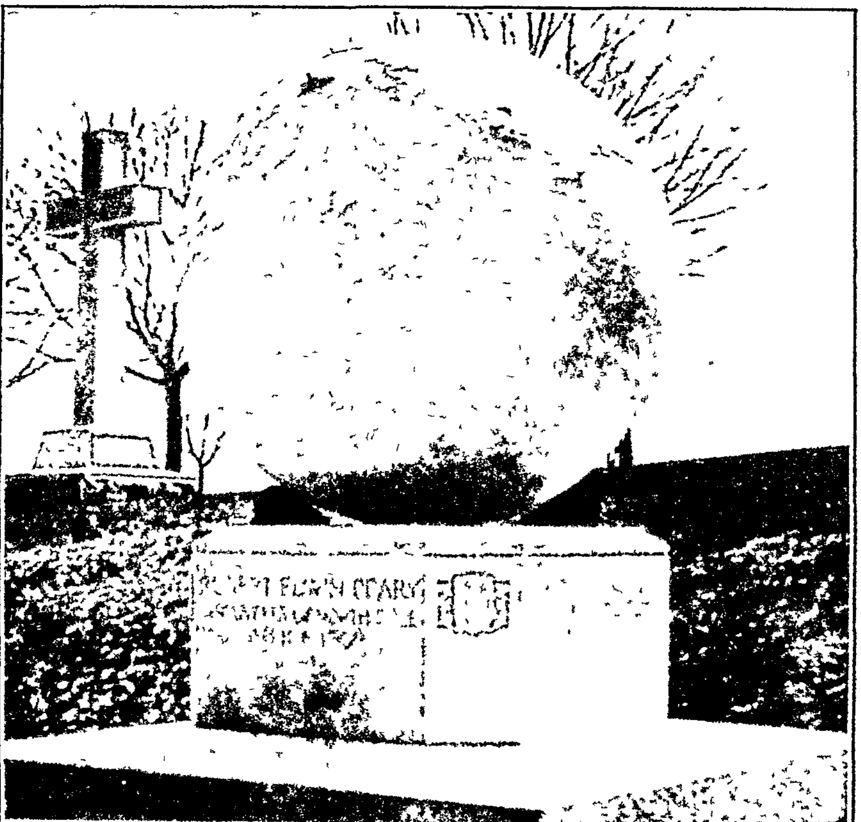
With gold medals of the Royal Geographical Society of London and the National Geographic Society of Washington—Robert F Scott (left) reached the south pole January 18, 1912, Robert E Peary (center) discovered the north pole April 6, 1909, Roald Amundsen (right) discovered the south pole December 14, 1911, and flew over the north pole May 12, 1926



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ROOSEVELT, ALWAYS PEARY'S FRIEND, GREETS HIM

Roosevelt hailed Peary as "Chief of Arctic Explorers"



© Underwood & Underwood

PEARY SUGGESTED THE FORM OF HIS MEMORIAL

Unveiled at Arlington National Cemetery, April 6, 1922 Rear Admiral Robert E. Peary, "Born May 6, 1865—Died February 20, 1920"

In the same year, John Biscoe, an English sealer who was also in the employ of the Enderbys and who was a former mate in the Royal Navy, circumnavigated the pole in a high latitude and came upon lands and islands hitherto unknown. He touched at Palmer Land and the Biscoe Islands and gave the name of Enderby Land to an icy coast which he discovered in latitude 66° 2′ S.

Doubtless swayed by the same sanguine hopes of fortune which prevailed in England, France in 1837 set out to "reach as far as possible toward the south pole." A dapper gentleman, Captain Jules Dumont d'Urville, was placed in command of two corvettes, the "Astrolabe" and the "Zelée." He was a small man and gouty. As he strutted aboard ship his crew shook their heads. "What, that little fellow!" they exclaimed. "He won't take us far!" But as D'Urville drove his ships through the tortuous Strait of Magellan, scraping against rocks, grinding over reefs, and bucking the winds with full sail, in terrified amazement they cried, "The ——— man is mad!"

D'Urville smiled and sailed southward until he found himself blocked by a solid wall of ice beyond which he could see the open sea. Slamming his ship with all its force against the ice, he penetrated some three ship lengths into it, when he called the crew out with axes and saws and ordered them to cut their ship's way through for many miles. Caught by floating bergs, the vessel was battered around for several days but following through the space cleared ahead of her she finally escaped into open sea. She had lost her spars and most of her copper sheathing, but to D'Urville the loss was insignificant, for on January 19 lands loomed before him. He named them in honor of his king and in tribute to his wife in France, Louis Philippe Land and Adélie Land.

Had D'Urville but sighted this land three days sooner he might have shared at least the honor of first sighting the great continent which lies around the south pole, but as the event later proved it was an American, Lieutenant Charles Wilkes, whose name was to rank with D'Urville's own in the history of the Far South. Wilkes was a naval officer who sailed into the southern seas on the first scientific expedition ever authorized by the American Government. His expedition was, in fact, the first organized expedition from the United States to enter the antarctic seas. His objects were not sealskin and whale oil but, according to the order of the Congress of the United States, "to promote the interests of the American merchant marine . . . to explore and survey the southern waters, charting all points liable to be of assistance to the interests of our sealers and whalers." With Wilkes went scientists to record discoveries in geology, mineralogy, botany, horticulture, zoölogy, and philology. He was also accompanied by a staff of cartographers and artists.

The "Peacock," the "Flying Fish," the "Vincennes," the "Sea Gull," and the "Relief," sailed out of Hampton Roads on August 19, 1838, bound for Cape Horn and southern waters. Upon arrival at the cape, the ships were divided, one pursuing scientific investigations in the islands of New Holland and New Zealand, and the others following on the trail of Captain Cook until they encountered the ice pack. All attempts to keep together were then abandoned, each ship seeking to find its way through the pack as best it might, while keeping a constant lookout for signs of land.

In waters swirling with sea lions and killer whales, over the same trail which Byrd was to follow ninety years later, Wilkes plowed a passage through the hitherto

impenetrable ice jam. Courage was rewarded by the sight of land, but Wilkes discovered that he could not approach the land through the ice. Sailing along the coast, therefore, for many days he stood on the deck and caught glimpses of it like a mirage. In the distance loomed what was evidently a vast ice-locked dominion. Wilkes concluded that it was not an archipelago but another great continent, and on January 16, 1839, Wilkes named it the Antarctic Continent.

To verify his conviction that the land was of continental proportions, Wilkes continued to follow along the ice barrier for many miles. Encountering a hurricane, his ships were saved by a miracle, a passage through the huge bergs opening before them as they were driven helplessly forward. "The sight was beautiful," Wilkes wrote afterwards. "Over one hundred icebergs varying from a quarter of a mile to three miles in length. We had the land now in plain view, but the weather soon began to thicken and the breeze to freshen. At noon it was so thick that everything was hidden. The ship was hove to . . . we took three reefs in the topsails. . . . It appeared now that certain wreck would ensue should we remain where we were.

"I stood for an open space among the bergs. . . . At 8.00 P. M. it began to blow . . . with a violent snowstorm circumscribing our view . . . the barometer still falling and the gale increasing. It was impossible to see two ship lengths ahead. The cold was severe and every spray that touched the ship was converted instantly into ice. . . . The gunner, Mr. Williamson, fell and broke his ribs on the icy deck. . . . The gale at this moment was awful. . . . A seaman by the name of Brooks, attempting to execute the order to furl the sails, got on the lee yardarm. . . . The sail having blown over the yard prevented his return. . . . He was clinging to the lift and yard and appeared insensible

and stiff. . . . Spilling lines were at once rove and an officer and men sent aloft to rescue him. . . . They succeeded by passing a bowline around his body and dragging him into the top. He was almost frozen to death."

Having sailed as far south as his ships could by any possibility penetrate, Wilkes sailed the southern seas, surveying and making soundings of 154 islands and more than fifty detached reefs. He cruised among strange peoples and strange lands, observing savage customs and savage beasts. One incident served to show the temper of his spirit.

In the Fiji Islands two of his young officers, Lieutenants Alden and Underwood, took some men ashore to barter with the natives. The chief of the tribe was held as hostage aboard the vessel. Meeting a party of natives near the shore, the Americans had no sooner opened negotiations for the purchase of fruit and supplies than the native chief jumped overboard and swam for the shore. An ineffective shot was fired from the ship over his head. His escape was a signal for the cannibals to open hostilities.

"*Turanga! Turanga!*" cried the chief, "Make fight! Make fight!" Lieutenant Underwood was instantly struck in the shoulder with a spear, the force of the blow knocking him off his feet. Leaping up, he shot and killed the native who had thrown the spear, and seeing two powerful savages attempting to wrest the musket from Clark, a sailor, he struck one of them upon the head with the butt of his pistol, while Clark freed himself from the other by stabbing him in the breast with his sheath knife. The natives attempted a rush. Underwood killed one more with his pistol but as he attempted to draw a second pistol from his belt, a blow on the head stretched him senseless on the ground. A second blow from a poleax killed him.

Mr. Henry, a member of the shore party, shot one native and cut down another, but while he was attempting to retreat toward the boat, he too was struck lifeless to the ground. Clark, the sailor, after killing the native who had killed Underwood, escaped to the boat badly injured.

Wilkes wept like a child over the bodies of his men. There was no doubt that the attack was entirely unprovoked, and Wilkes determined to inflict the punishment it merited in his eyes, not because he wished to gratify feelings of revenge, but to save the lives of other white people who might visit the islands. Going ashore with a detachment from the boat, he surrounded a large body of the islanders, attacked and killed most of them.

England was quick, of course, to realize the advantages of scientific exploration and with her determination to send an expedition into the Antarctic under the great scientist Sir James Clark Ross the war for the possession of the newly discovered continent was begun. A skilful polar navigator who had started going to sea at twelve years of age, Ross was the nephew of Sir John Ross, the explorer of Baffin Bay, whom he had accompanied on his first disastrous voyage to the Arctic and again on his last voyage when he had discovered the north magnetic pole. He had gained world-wide fame with Parry on the top of the world, and he was now celebrated in the realms of both magnetism and hydrography. Under his command two ships, the "Erebus" and the "Terror," sailed from England in 1839. Second in command was Captain Francis Crozier, who later lost his life on the ill-starred Franklin expedition.

Sir James had in his possession information and charts which Wilkes had sent to him out of courtesy. With these as guides he struck directly through the ice pack. Gwyn, the English authority, describes his sudden emergence:

"Bursting forth from the pack into an open sea, he discovered (January 8, 1840) the glorious mountainous country of Victoria Land. He had found a point where the frozen continent's coast line is deeply embayed, and he was able to sail two hundred miles farther southward beyond the utmost penetration then as yet recorded. He saw and surveyed the mountain chain from the sea; he had the first sight of the lofty volcanic peaks, one of them still active, to which he gave the names Erebus and Terror. Close to the foot of these he discovered a monstrous wall of ice stretching continuously to the eastward for four hundred miles—and he named it the Great Barrier."

No landing was effected. Ross never set foot on the continent which he saw, and never made a nearer approach to the smoking mountain which gave forth deep-red flashes of flame, casting a lurid glow over the black rocks and gleaming ice of its precipitous slopes. Today Ross Sea and Ross Barrier are again made famous by Byrd as the site of Little America, and they stand forever as a monument to Sir James.

Sighting a small island off the coast in lat. 71° 14′, where millions of penguins were the only inhabitants, Sir James formally took possession of it in the name of the queen. He lined up his officers aboard ship, and they lifted their glasses of sherry and drank to the health of Victoria as they christened the island "Possession Island."

In his log on January 23, 1841, Ross wrote these words: "We are nearer the south pole than any other vessel has hitherto attained . . . Weddell's farthest being 74° 15′ and ours 74° 23′." At Tasmania, to which they returned in triumph and of which Sir John Franklin was then governor-general, a brilliant ball was given in honor of the great explorer and his remarkable discoveries. Afterward,

as a last farewell to Antarctica, Ross penetrated the circle once more in 1842 to complete the charting and surveying of his new discoveries. In England he was received by the people with a tremendous ovation and knighted by Queen Victoria.

Chapter XVIII

DEATH STALKS IN THE LAND OF THE BLIZZARD

ENGLAND, now that the existence of the southern continent was certain, decided to attack the Antarctic seas with steam power. Only sailing vessels had so far approached the continent, but it was believed that a steamship could drive its way through the ice jam where the old whalers had failed. It was with this idea that Captain George Nares of the Royal Navy, commanding H.M.S. "Challenger" on a scientific journey around the world, turned the vessel's bow south and crossed the antarctic circle on February 16, 1874. Testing the efficacy of the steamship against the ice pack, he came to the islands of the Crozet group, which had not been sighted for a hundred years, and confirmed their existence.

"Though the 'Challenger,'" states Greely, the American authority, "barely entered the circle, yet her researches contributed in an unparalleled degree to our knowledge of the south polar regions. Murray, scientist of the expedition, proved that ninety species of animals unknown to the tropical oceans are common to the northern and southern seas. Meteorologically, Murray demonstrated that high barometric pressures cover the ice-clad lands about the south pole. Their dredge nets were filled with a wealth of marine fauna unequaled in any other part of the world. They gathered glaciated rock fragments—granites, quartz, gneisses, sandstones of antarctic lands not found in oceanic lands. They proved conclusively the existence of a southern continent."



Photographed by Ponting © *Brown Brothers*

AT THE BOTTOM OF THE WORLD—SCOTT'S SHIP

The "Terra Nova," an old Dundee whaler that has "seen more polar service than any other ship that ever sailed the seas"

SCOTT'S LAST CHRISTMAS DINNER

In a "hut" under the volcanic shadow of Mt Erebus, 13,500 feet high

Photographed by Bowers

PHOTOGRAPH TAKEN AT THE SOUTH POLE—January 18, 1912

They found here the cairn built by Amundsen 35 days earlier Starting homeward in the teeth of a blizzard, Scott and his entire party perished within eleven miles of their depot.

Other nations joined England in the antarctic discoveries. Captain C. A. Larsen, a Norwegian sealer, landed in 1892 and collected fossils found to the south of 65°. Another Norwegian sealer, Captain Christensen, in 1894, having on board a young English scientist named Carstens Egeberg Borchgrevink, who was later to make an expedition of his own, reached Coulman Island, 74° S., coming within four degrees of the farthest south record. Belgium sent an expedition, headed by Captain Adrien de Gerlache, in 1897. He took with him as subordinates two men who were soon to become famous in polar annals, Roald Amundsen and Dr. Frederick A. Cook. It was on this voyage that Cook saved Amundsen's life, a deed for which Amundsen proved himself to be eternally grateful. On the ship, "Belgica," they made surveys of the islands west of Graham Land but they penetrated only as far as 71° 30′ S. Borchgrevink, sailing independently for England, landed a party which wintered in 1898 at Cape Adare, the northeast point of Victoria Land, where, although no sledge journeys were possible, they made observations and collections of considerable value. Borchgrevink sailed south to Ross Barrier, which he located at a point considerably south of the point where it had been discovered by Ross.

It was about this time that a young Britisher, thirty-two years of age, appeared off the coast of Antarctica in command of the famous ship "Discovery." He was captain Robert Falcon Scott of the Royal Navy. With him as a subordinate was the great Shackleton. They had sailed from England with the personal good wishes of the king and queen. What a fate, full of both honor and tragedy, lay in store for both of them!

The "Discovery" was the first ship ever built in England for scientific exploration. She was christened with a

distinguished name. There had been five ships named "Discovery," none of which had met shipwreck or disaster of any kind, and all of which had made honorable records of exploration, from the first, which had been commanded by Baffin, to the fifth, which had made a splendid record in the Arctic. "The ship of solid oak," they called her, for her frame of English oak was eleven inches thick; her inner lining was of Riga fir and Honduras mahogany. She was strengthened by crossbeams of hewn oak. The bow was so shaped that when charging an ice floe she would rise above it two or three feet, bringing all the weight of the ship to bear with a downward thrust that would split the floe. The engines on trial developed over five hundred horse power. The propeller and the rudder were protected from damage by an overhanging stern, a new feature in ship construction which caused much comment.

On Christmas Day in 1901, Scott found himself in the thick of the ice pack. Making his way through it, he hove in sight of the great Ross Barrier and found that it had receded thirty miles farther south than when it was visited by Ross in 1842. He skirted the barrier until he reached McMurdo Bay, where, after some further explorations, he cast anchor.

Here, early in 1902, was made the first ascent in a balloon on the continent of Antarctica. Young Scott, mounting in its basket, rose eight hundred feet in the balloon, held captive to the ship, and was the first man to look from the air over the vast empire of ice in whose conquest he was to play a brilliant part. From his observations in the balloon he chose the spot on which to establish his winter base on the shores of the bay. There the first settlement on Antarctica was set up, a settlement of huts over which whipped the British flag.

Spring came, and the dogs tugged at leashes, yelping and leaping to be off on the quest. "My loyal dogs," said Scott, "they are almost human. How they love to worry a seal. The hunting instinct is paramount. The most listless, weary, bored-looking dog, or team of dogs, has only to catch sight of the black dots far off over the snow to become electrified into a state of wild excitement. If a person has a single animal on a leash, the chances are that he is caught unprepared and the next moment finds himself without a dog or being dragged rapidly along on the pit of his stomach. To a team harnessed to a heavy sledge, a load which a moment before appeared to be taking the heart out of the animals, becomes the merest bagatelle, and the driver is lucky if he has time to add his own weight to the load and so prevent being left behind."

On light ski runners, Scott and his party set out on their first sledge journey. They carried a primus lamp and a Nansen cooker for cooking, rations of biscuits, oatmeal, pemmican, red ration, plasmon (a flourlike preparation made from skim milk), pea flour, cheese, chocolate, tea, sugar, onion powder, and a small allowance of salt and pepper. Personal property was strictly limited to a certain weight. But if a man chose to forego a pair of socks and take its weight in tobacco, he might do so. Scott wrote: "I remember gazing at my spare suits and wishing to heaven I'd brought tobacco instead."

On another preliminary sledge journey, on which twelve men set out with messages for the ship near Cape Crozier, Scott, himself, could not go because of a sprained leg. Not one of the men on this expedition had ever driven a dog before or had any previous polar experience. Gaining knowledge of the cruel ways of nature in these latitudes cost them a high price. Frostbitten, they could not get

their tents up without great difficulty. They had trouble with their cooking apparatus, and they bungled the packing of their sledges. After terrible adventures in an antarctic blizzard in the wilderness of snow, in which one man was killed when he fell over a precipice, they made their way back into camp. Never again did they underestimate the dangerous challenge of the frozen land, with its deadly traps set for the unwary explorer. "Two years later," wrote Gwyn, "they were men handled and made. . . . For the particular type of sledge journey to which Scott devoted himself the world did not hold their equals."

On November 1, 1902, Scott with two comrades, Shackleton and Doctor Wilson, set out on the first drive for the south pole in the world's history. With nineteen dogs and provisions for thirteen weeks, they began the dash. They had been advancing southward only two weeks when something, they did not know what, went wrong with the dogs. They thought it was something lacking in the dogs' food. Advancing at a snail's pace, the sick dogs began to die. The three men were forced to divide their load, advance with half of it, and come back again for the rest, thus traveling every weary mile of advance three times over. Then they cached half their provisions and advanced on reduced rations. Hunger gripped the men, and they killed more of the dogs to save themselves from starvation. Wilson was stricken with snow blindness and stumbled forward in constant agony. Shackleton was attacked with scurvy. But they went on.

On Christmas Day, 1902, they discovered a glorious new mountain peak, which they named after Sir Clements Markham, father of the expedition. Five hundred miles from the pole, they knew they could go no farther. Human endurance could stand no more. But they had made

another world record for England. They stood at the farthest south yet reached by man, 82° 17′ S.

The last remaining dogs failed and were killed for food. The men were forced to man-haul the sledges for the rest of the long journey home. Killing the dogs worried Scott: "I must confess that I personally have taken no part in the slaughter," he recorded. "It is a moral cowardice of which I am heartily ashamed, and I know perfectly well that my companions hate the whole thing as much as I do. At first this horrid duty was performed by Wilson, because it was tacitly agreed that he would be by far the most expert; and later, when I was perfectly capable of taking a share, I suppose I must have shrunk from it so obviously that he, with his usual self-sacrifice, volunteered to do the whole thing throughout. And so it has been arranged, and I occupy the somewhat unenviable position of allowing someone else to do my share of the dirty work."

Shackleton collapsed, too weak to travel, and he had to be hauled on the sledges by his overburdened comrades. By forced marches they reached the "Discovery." They had been gone ninety-three days and had covered 960 statute miles. There a most welcome sight greeted them. Swinging in the harbor was the relief ship "Morning" which had been sent to their aid. The "Morning" unloaded supplies and "the blessed mail" and returned to England leaving Scott in the Antarctic for another winter. Shackleton, an invalid, with eight comrades, went home on board her. The other men elected to stay with Scott.

The explorations continued. Geologists collected specimens while other scientists studied the penguin colony near by. Scott, with Evans and Lashly, led an expedition to the westward, ascending 9,000 feet above the sea to the very summit of the mountains which barred his way. They

had taken no dogs, and while the men were pulling their sledges three abreast, Scott and Evans suddenly broke through a snow bridge and disappeared in a crevasse. The harness ropes held up under their weight. Lashly, stretched at full length, slipped his skis under the sledge to strengthen it. Scott, meanwhile, dangling at the end of his rope, found a precarious foothold on the side of the precipice and got Evans's feet upon it. Lashly tried to pull up his comrades but could not manage it. Their only hope was to climb up the ropes. This Scott managed to do with half-frozen fingers. He and Lashly pulled up Evans.

On Scott's return to the ship he found that his men, in an attempt to free her, had cut a passage through the ice twenty miles long and 150 feet wide. This labor was wasted, for the "Discovery" remained fast, and even dynamite failed to release her. At that time two relief ships appeared, the "Morning" and the "Terra Nova," with orders from the British Government to Scott to abandon his ship if he could not release her from the ice. Then suddenly, where dynamite had failed, nature succeeded easily in her own good time. The ice began to split away. Slowly and majestically one enormous berg after another floated off. In forty-eight hours the little harbor was entirely clear of ice, and the way home lay open before them.

In 1904 Scott, home in England, was acclaimed as a hero. He was raised to the rank of captain and visited King Edward at Balmoral. He was decorated by France, Germany, and Sweden. And in the midst of it all he was married to Miss Kathleen Bruce, daughter of Canon Bruce of York, a promising young sculptress. "The wedding party went into the chapel in the brilliant sunshine. As the services went on the sky darkened, and there were three violent claps of thunder at dramatic moments in the ritual.

Then the sky cleared again. Old Admiral Sir Lewis Beaumont said as they came out: 'Gad, what a salute from heaven!' " In the light of after events that strange thunder sounded like an omen of doom.

Lieutenant Shackleton, who had been invalided home from the Scott expedition, no sooner recovered than he set to work to raise funds for a new ship in which under his own command he would go to make a new dash for the pole. His great personal enthusiasm, combined with the assistance of his friends, enabled him to get together enough money to purchase an old but stanch sealing schooner, the "Nimrod," and to store her with the most modern equipment, including Manchurian ponies and a new type of motor sledge, neither of which had heretofore been used in polar work. He sailed from England in August 1907, with a party including the famous Sir Douglas Mawson, an able physicist, geologist, and magnetician, who was later to make explorations on his own account.

The little "Nimrod" was fortunate from the outset. She made her way through the dangerous pack without mishap and anchored in McMurdo Sound on February 3, 1908. The portable hut was taken ashore and set up, the motor sledges proving of great assistance in the hauling of supplies. Their camp, including the stable for the ponies, was situated just beneath the smoking cap of Mount Erebus, only twenty miles from the camp of Scott's "Discovery" expedition.

A severe blizzard raged about them for three days, but as soon as they were settled Mawson, Professor David, and Mackay started on an expedition to climb the volcanic Mount Erebus. They were supported by another party of three men. Sledging for the first part of the way, they were soon forced to transfer their loads to their own backs

and leave the sledges behind. Halfway up the mountain they were struck by a blizzard which forced them to dig themselves into the snow and lie quietly for three days in their sleeping bags, unable to melt drinking water or to heat food until the storm was over. Then after a steady climb of five days they reached the summit, 13,300 feet above the sea. Brocklehurst had both feet badly frozen.

"We stood," says their report, "on the verge of a vast abyss, and at first could see neither to the bottom nor across it on account of the huge mass of steam filling the crater and soaring aloft in a column five hundred to a thousand feet in height. After a continuous loud hissing sound lasting for some minutes, there would come from below a big dull boom and immediately great globular masses of steam would rush upwards to swell the volume of the snow-white cloud which ever sways over the crater. Meanwhile the air around us was redolent of burning sulphur. Presently a northerly breeze fanned away the steam cloud, and at once the whole crater stood revealed to us in all its vast extent and depth—the depth about nine hundred feet and the width a half a mile."

The descent was more rapid than the upward climb. Time after time, they simply sat down and slid (glissaded) for three to five hundred feet at a time, getting some rough bumps here and there but traveling with the speed of an avalanche. Their comrades greeted this first successful achievement of the expedition with an ovation.

More important perhaps was the second great achievement of the Shackleton expedition. Sir Douglas Mawson, together with Professor David and Doctor Mackay, set out and were successful in discovering the south magnetic pole on January 16, 1909. Here in lat. 72° 25′ S., long. 155° 16′ E., they raised the Union Jack, and turned homeward in a race



Had we lived I should have had a tale
to tell of the hardihood, endurance & courage
of my companions which would have
stirred the heart of every Englishman.
These rough notes & our dead bodies must
tell the tale but surely surely a great
rich country like ours will see that those
who are dependent on us are properly
provided for R. Scott

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DYING MESSAGE OF CAPTAIN SCOTT

The note was found near his body, November 12, 1912, where he died on his way back from the south pole



© *Brown Brothers*

BACK HOME IN LONDON, LITTLE PETER SCOTT WAITS FOR HIS "DADDY"

The great explorer lies buried in this lonely cairn where he fell with his men in Antarctica

against bad terrain, bad weather, and starvation. Living on seal and penguin, they made their way to the coast, hoping for the "Nimrod" to sail to their relief.

They sighted the "Nimrod" with thanksgiving. But suddenly while they rejoiced Mawson fell down a crevasse. The utmost efforts of his two comrades failed to pull him up. Mackay ran toward the ship for help and reached her as she was making fast to an ice wall at the shore.

"Mawson has fallen down a crevasse, and we got the magnetic pole!" he shouted in one breath. A party from the ship swarmed over the side. With the help of an improvised bridge they soon had Mawson again on the surface, uninjured except for a slightly bruised back. On the ship the men stretched out in comfortable chairs and tried to eat jam, drink tea, smoke pipes, and talk all at the same time.

On October 28, 1908, the great drive for the south pole was begun. Shackleton with three comrades, Marshall, Wild, and Adams, and four ponies, all provisioned for ninety-three days, began the journey. Depots had been established on the route, but from the outset the four men found trouble. Shackleton had chosen a route about forty miles east of Scott's in the hope of avoiding the terrible crevasses, but what looked like a smooth, hard surface proved to be full of crevasses over which deceptive snow had drifted. Into these crevasses their ponies fell. Their flesh was saved for food. Day by day as they went southward new mountains rose before them which had never been seen before by the eyes of man. Their imaginations became inflamed with visions of what might next appear in so much marvelous beauty until, as Shackleton says, "a stumble in the snow, the sharp pangs of hunger, or the dull ache of physical weariness brought back our attention to the needs of the immediate present."

The great Beardmore Glacier, a magnificent highroad to the south, loomed before them. They followed the mountain side in the face of the bitter, driving wind. Their last pony, on which they counted for eventual food, fell down a crevasse and was lost. This necessitated cutting down their daily rations and drawing the thousand-pound sledge by themselves. They were now three hundred miles from the pole. As they crawled along on their reduced rations, they bitterly cursed the loss of the pony, and further reduced their rations in an attempt to make them hold out until their goal was attained. "We dream of food all night long," wrote Shackleton, "and are eating the pony maize, which we soak in water to make less hard."

On Christmas Day, 1908, they had reached an elevation of 9,500 feet. Mountain sickness, nosebleed, and physical strain beset them. On New Year's Day they were 10,775 feet above sea level. Shackleton wrote: "God knows we are doing all we can, but the outlook is serious, for we are not travelling fast enough to make our food hold out and get back to our depot in time. We can now definitely locate the pole on the highest plateau in the world . . . and we have arrayed against us all the strongest forces of nature. After ten hours of struggling against this cutting south wind one pannikin of food, with two biscuits and a cup of cocoa, does not warm one up much."

Desperately they struggled southward until January 19, 1909, when they were forced to admit defeat. To go farther was suicide. A single mistake would cost them their lives. They rose at four in the morning, crawled out of frozen sleeping bags, and sadly agreed to push forward until nine o'clock and then turn back. Half running all the way, they gained what ground they could before the final hour, when they stood at 88° 23′ S., the farthest south. Raising

the queen's flag and the Union Jack, they took formal possession of the land in the name of the king.

Only ninety-seven miles away lay the south pole—still unconquered—beckoning them on to death. They had outdistanced Scott's record by 336 geographical miles, but their strength was gone, their supplies were at the minimum, and 700 miles behind them lay their hut and the ship. One thing only was in their favor. The bitter south wind that had cut their faces would be behind them on the return journey. They rigged sails on their sledges and made sometimes as much as thirty miles in a day's march. The death of the pony had lost them the pole, but the strength of the wind saved their lives. Sickness overtook them. On February 4th Shackleton wrote: "Cannot write more. All down with dysentery; terrible day; no march possible; outlook serious." And a few days later: "Blowing hard blizzard; dead tired; food short; very weak."

Wild's strength failed so that he could go no farther, and Shackleton and Adams pushed on alone, leaving Marshall to care for the sick man With forced marches they sped on their way toward the ship. At last they reached the top of the rise behind the hut and looked down into the bay. The ship was gone.

They hurried on to the cold and cheerless hut. There they found a letter saying that the ship would wait at the other end of the bay until February 26th. It was then February 28th. Climbing the rise, they attempted to tie a flag on a high pole, but their frozen fingers could not accomplish the task. In despair, they tried to set fire to the magnetic hut so that its blaze might serve as a call for help should the ship still be in sight The hut refused to burn. At last in utter weariness and despair, they fell

asleep sitting up, wrapped in roofing paper, all the cover they could find.

Morning came. A last desperate attempt, and the hut burst into flames. The flag was unfurled. The ship caught the signals. Those on board had given up the explorers for lost but had waited on a last chance that they might appear. Aboard, warmed and fed, the heroic Shackleton could not rest with two of his men still out on the ice sick and waiting rescue. He would not allow anyone else to lead the relief party. A few hours' sleep and he started back on the hazardous journey after his men. He brought them safely in.

Shackleton's return home to England was the signal for deep rejoicing. He was knighted for his heroism by King Edward VII, and Britain proclaimed his achievement as "the greatest contribution yet made to the solution of the antarctic problem." In her jubilation England did not realize what tragedy awaited her hero.

Chapter XIX

NORWAY PLANTS ITS FLAG AT THE SOUTH POLE

SINCE his great voyage of exploration through the Northwest Passage in the little "Gjöa," Roald Amundsen had spent the years planning an expedition for the discovery of the north pole. "Then suddenly," says the record he has left, "the news flashed all over the world that the north pole had been attained, that Admiral Peary had planted the Stars and Stripes up there. . . . One of the last mysterious points of the globe had been discovered. The last one still remained undiscovered, and then it was that I took my decision to turn from north to south—to apply my efforts to solve the last great riddle of the polar regions."

The Norwegian Government gave him the use of the "Fram" and also made an appropriation of about $20,000 for her repair and equipment. This was the ship that had been built for Nansen and with which he had accomplished his historic drift across the polar sea. She was now not to drift but to race across the world for the last great prize of exploration. She sailed from Oslo on June 7, 1910.

Exactly one week earlier, on June 1, 1910, the "Terra Nova," with Captain Scott back in command of a picked crew, sailed from England bound for the same goal. England, beaten at the north pole, did not intend to be beaten at the south pole. The "Terra Nova," a refitted Dundee whaler, carried in addition to the explorers and crew thirty-three dogs and nineteen ponies, and three specially designed

motor sledges which were to prove quite useless when confronting the polar conditions.

Amundsen landed in the Bay of Whales in Antarctica on January 14, 1911, to find Scott's headquarters already established only a few miles away on the west side of Ross Island. The antarctic winter was ahead of them, and no dash to the pole could be attempted by either until the coming of the good weather of October and November. During the long darkness each laid his plans, made preliminary excursions to the west and east, plotted his route, and established his depots.

Scott based his hopes on man power supplemented by the use of ponies, dogs, and the most modern equipment, including motor sledges. Amundsen, on the other hand, planned to use only the most ancient of methods. His sledges and dog teams were much the same as those used thousands of years ago by the first savage nomad peoples who pushed their way across the frozen wastes of Siberia and northern Europe. Amundsen gave his reasons for his choice: "The dog being a small creature can much more easily cross the numerous slight snow bridges that are not to be avoided on the Barrier and on the glaciers. If a dog falls into a crevasse there is no great harm done; a tug at his harness and he is out again; but it is another matter with a pony. This comparatively large and heavy animal of course falls through far more easily, and if this happens, it is a long and stiff job to get the beast hauled up again—unless, indeed, the traces have broken and the pony lies at the bottom of a crevasse a thousand feet deep.

"And there is the obvious advantage that dog can be fed on dog. One can reduce one's pack little by little, slaughtering the feeble ones and feeding the chosen with them. In this way they get fresh meat. And if we

ourselves want . . . fresh meat we can cut off a delicate little fillet; it tastes to us as good as the best beef. All that is left after one of these canine meals is the teeth of the victim—and if it has been a really hard day, these also disappear."

Amundsen started for the pole, a distance of 870 miles from his camp, Framheim, on October 19, 1911, taking with him four Norwegians, Hanssen, Hassel, Bjaaland, and Wisting. They had four sledges drawn by fifty-two dogs, carrying provisions for four months. On November 5th, they reached their last depot at 82° S., where they rested and for the last time ate all they could hold. Three days later they started on again, relieving the heavily laden sledges by establishing a cache of provisions as they passed each degree of latitude. Every few miles they erected snow beacons intended to serve as guides on the return journey.

The mountain barrier which had to be climbed in order to reach the great polar plateau loomed before them. On they went over the ice of the great Axel Heiberg Glacier, making long detours around impassable chasms. As they marched on, they named two great mountain peaks, 15,000 feet in height, after their friends, Fridtjof Nansen and Don Pedro Christophersen. One night they camped 10,000 feet above the level of the sea.

On November 20th the long, hard climb came to an end, and they emerged upon the highest plateau in the world. Here they camped for a rest before the final drive, and here twenty-four of their faithful dogs were marked for death in order to save food for the return journey. No one was happy that night. They had grown very fond of their four-footed friends, and in sad remembrance they named the place the "Butcher Shop."

Thus far the weather had been good, but at the start of their last lap a terrific blizzard swept into their faces. They drove their sledges on although the drivers could scarcely see the dogs. There was something uncanny, Amundsen said later, about this blind advance among crevasses and chasms on all sides. Examining the compass, they went forward cautiously on skis. Enormous blocks of ice lay piled helter-skelter before them as if thrown in some battle between the giants of past ages.

"Thank God, I was not here when this was going on!" exclaimed Amundsen with his infectious smile. It looked like a section of hell, and they named it the Devil's Glacier. Later, when they found at last a small opening through which they could pass, they called it Hell's Gate. "The fog," recorded Amundsen, "prevented our seeing far. From the height on which we stood every precaution would be required in going down to the other side, for there was an opening especially adapted to receive any drivers, sledges, or dogs that might make a slip."

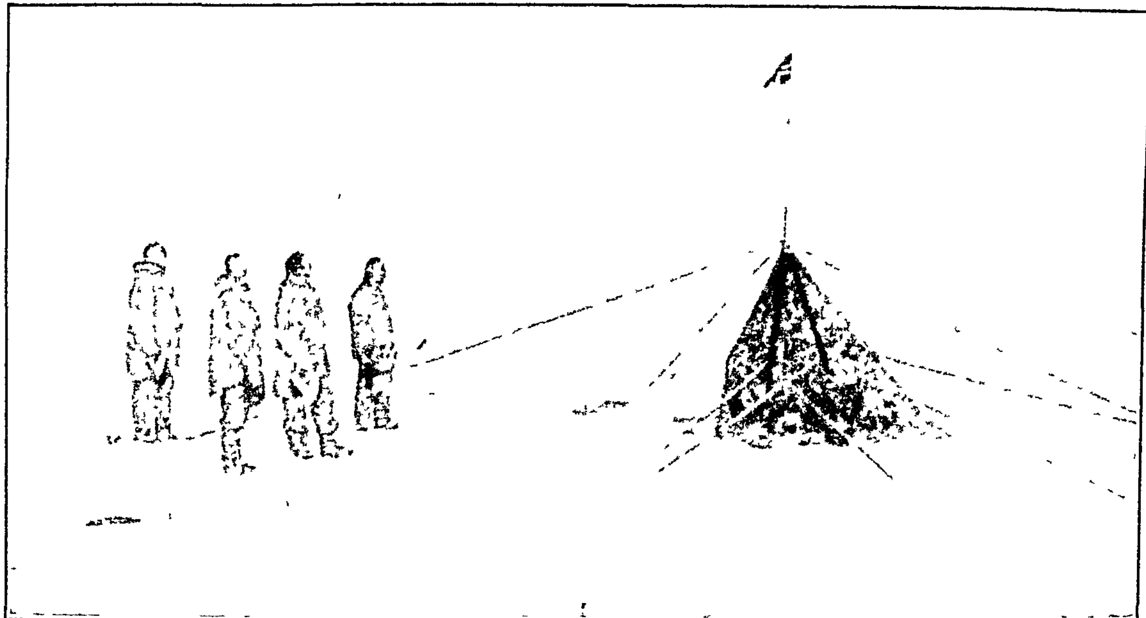
The ironic remarks of their leader instilled in his men a spirit which made them face the greatest danger with a devil-may-care good-fellowship. They were laughing and praising each other the whole way. There was no selfishness, no grumbling. They went on through the terrible country in fine spirit, learning as they went wherein their dependence lay.

"Every day we had occasion to bless our skis," recorded Amundsen. "We often used to ask each other where we should now have been without these excellent appliances. The usual answer was: 'Most probably at the bottom of some crevasse.' I am not giving them too much credit when I say that they not only played a very important part, but possibly the most important of all on our journey."



PHOTOGRAPH TAKEN BY AMUNDSEN HIMSELF—December 14, 1911

First to reach the south pole, he plants the Norwegian flag The photograph shows Wisting, who flew with Amundsen over the north pole, and later went with Byrd to Antarctica



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AMUNDSEN PHOTOGRAPHS FOUR OF HIS MEN AT THE SOUTH POLE

Hassel, Wisting, Hanssen, and Bjaaland They trekked with dog sleds over hundreds of miles of snow and ice in order to be first to find the coveted goal.

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AMUNDSEN AT THE POLE DETERMINING HIS POSITION

He leaves messages for Scott "Good luck" and "Welcome to 90°" were written on a tablet attached to a tent pole

At last, on December 7th, they passed the mark of Shackleton's record, 88° 23′ S. Tears came into Amundsen's eyes as he raised them and saw the little silk Norwegian flag that he loved whipping out in the breeze and thought that he had added to its glory by this victory. But the pole lay another hundred miles away.

On December 13th, they reached 89° 45′ S. and camped for rest. The next day they would reach the pole. Amundsen could not sleep. "I felt," he wrote, "like a child on the night before Christmas!"

December 14th, the historic day, arrived. With the Norwegian flag bound on a sledge and lovingly prepared for erection, they raced forward eagerly. They looked ahead with straining eyes. Nothing but flat plain stretched away in front of them. At three o'clock in the afternoon they halted. By dead reckoning they knew that they had reached the south pole at last. They stood at the bottom of the world.

It was the great moment of their lives. Amundsen struggled to control himself as joy filled his heart. He was handed the flag of Norway to plant at the pole. His great and noble nature showed itself at that moment. He refused to take the flag. He has written the story:

"Pride and affection shone in the five pairs of eyes that gazed upon the flag, as it unfurled itself with a sharp crack, and waved over the pole. I had determined that the act of planting it—the historic event—should be equally divided among us all. It was not for one man to do this; it was for all who had staked their lives in the struggle and held together through thick and thin. This was the only way in which I could show my gratitude to my comrades in this desolate spot. I could see that they understood and accepted it in the spirit in which it was offered.

"Five weather-beaten, frostbitten fists they were that grasped the pole and raised it high in the air, and planted it as the first at the geographical south pole."

Amundsen spoke for them all: "Thus we plant thee, beloved flag, and give to the plain on which thou fliest the name of King Haakon VII Plateau!"

"We would go through hell again, or twenty times over for a leader like that!" exclaimed Wisting. Wisting had brought with him several plugs of tobacco, but until then there had been no smoking. He presented them to Amundsen, who "dearly loved a smoke after meals." This gift meant much to the victorious explorer. He marked his beloved briar pipe with the words, "South Pole," and the men marked those words on every article in the equipment.

The south pole was circled and a cairn built. A tent was set up on which "Fram" had been painted. In it, on a tablet tied to the tent pole, all signed their names and wrote, "Welcome to 90°," "Good luck," and other messages to any who should follow them in the days to come. A letter was left for Captain Scott who, they knew, must be on his way by this time.

Then they faced the rough homeward journey of nearly nine hundred miles. Two of the sledges were abandoned, more of the dogs were killed for food. Their goods were packed on the two remaining sledges. So far all their plans had worked smoothly. As they turned northward the little flag on "Polheim" faded slowly behind them and at last disappeared altogether. Light-hearted they went back to tell the world of their victory. Back they went across the plateau, through the mountain ranges, past the "Butcher Shop," down the Devil's Glacier, and out at last on the barrier of ice at their last depot. Here

they left various articles, among which were matches which were to be found eighteen years later by Lawrence Gould, geologist on the Byrd expedition, and brought back to America. On January 25, 1912, they were back again at their headquarters without having suffered any accident on the journey.

How tragically different is the story of Scott! With no foreknowledge that his fight was lost and that his adversary had beaten him to the goal, the heroic Englishman had started on his dash to the pole on November 2, 1911, thirteen days behind Amundsen. With motors, ponies, and dogs he fought his way on the first advance. The motors went wrong from the outset. In the blasts of frigid wind it was difficult to get them started, and they frequently became overheated on account of their low gearing. What progress they did make was slow and unsatisfactory. Finally the connecting rods broke, and when the spares broke also, the motors were abandoned, having made a combined total of less than 140 miles.

Struggling through endless drifts of snow full of treacherous crevasses, the ponies stumbled and floundered helplessly. They were the next to go. On December 5th, the party camped at the foot of Beardmore Glacier in a raging blizzard that lasted four days. The ponies, exhausted by half rations, here ate up all the remaining fodder. Scott decided to shoot them. Seventeen of the noble little beasts fell before the firing squad, and the camp was named "Shambles Camp." It had taken them thirty-four days, with an average progress of only twelve miles a day, to reach this camp.

At the foot of the mountains three sledge parties were formed, composed of four men each, and the ascent of Beardmore Glacier was begun. They advanced slowly.

One by one the supporting parties depoted their surplus supplies and turned back. The last party turned back on January 4, 1912, only 150 miles from the pole, leaving Scott, Doctor Wilson, Captain Oates, Petty Officer Evans, and Bowers to make the final dash. Full of courage and hope, these men plunged on toward the pole.

"What a lot of things we think of on these marches!" wrote Scott on January 6th as they passed Shackleton's farthest south record. The pole was within their reach. "What castles one builds in the air now that the pole is ours!"

Bad weather delayed them, but in ten marches they covered the remaining distance. The goal was won but what a defeat it was! The courageous words of Captain Scott himself tell the tragic story of their disappointment: "January 16, 1912—The worst has happened—or nearly the worst. Noon sight showed us in lat. 89° 42′ S., and we started off in high spirits in the afternoon, feeling that tomorrow would see us at our destination. About the second hour of the march Bowers' sharp eyes detected what he thought was a cairn—he was uneasy about it but argued that it must be a hard ridge of snow. Half an hour later he detected a black spot ahead of us. Soon we knew that this was a black flag tied to a sledge bearer—near by the remains of a camp—sledge tracks and ski tracks, going and coming, and the clear trace of dogs' paws, many dogs.

"This told us the whole story. The Norwegians have forestalled us and are first at the pole. It is a terrible blow —I am very sorry for my loyal companions. Tomorrow we must march on to the pole. . . . All the day-dreams must go—it will be a wearisome return."

And on the next day he wrote: "The pole at last! Yes, but under very different circumstances from those we

expected. We have had a horrible day—add to our disappointment a head wind with a temperature of 22 degrees and companions laboring on with cold feet and cold hands.

"None of us slept much after the shock of our discovery—the wind is blowing hard and there is a curious damp chill in the air. . . . Great God! This is an awful place and terrible enough for us to have labored to it without the reward of priority. . . . We built a cairn, put up our slighted Union Jack, and photographed ourselves—mighty cold work all of it.

"Found a note from Amundsen asking me to forward a letter to King Haakon! There is no doubt that our predecessors have made thoroughly sure of their mark and fully carried out their program. We carried the Union Jack about three-fourths of a mile north with us and left it on a piece of stick.

"Well, we have turned our back now on the goal of our ambitions and must face eight hundred miles of solid dragging—Good-bye to most of our day-dreams. . . . Now for the run home and a desperate struggle—I wonder if we can do it?"

The return journey was a long nightmare of discouragement and suffering. Wilson suffered agonies from snow blindness; Evans's nose was frostbitten again and again; Oates's feet began to give him great trouble. Scott himself fell on the slippery ice and injured his shoulder. On February 4th Evans fell and struck his head, giving him a concussion of the brain which rendered him useless.

They wandered on in a region full of horrid crevasses. Every attempt to find a way out seemed only to get them into greater difficulties. At last they won through to their depot just in time, for their food was entirely out. Bowers was seized with snow blindness. Evans died on February

17th from the results of his fall. They were making only six miles a day although nine was the minimum allowed for. Oates's feet were so badly frostbitten that his sufferings were heart-breaking as he stumbled on in the rear of the party. He pleaded with them to leave him in his bag, but they refused. Their strength was not equal to pulling his weight upon the sledge. He made no complaint, but all felt that the crisis was near.

On March 10th Scott wrote: "Oates's foot worse. He asked Wilson if he had a chance this morning. . . . Of course Bill had to say he didn't know. In point of fact he has none. Apart from him if he went under now, I doubt whether we could get through. With great care we might have a dog's chance but no more. The weather conditions are awful." Scott wrote the next day: "Oates is very near the end. What he will do, God only knows. He is a brave, fine fellow and understands the situation. He asked us for advice. Nothing could be done but to urge him to march as long as he could."

Then the tragic entry: "On March 16th, Oates knew that he could go no farther. He slept through the night hoping he would not wake, but he awoke in the morning. It was blowing ablizzard. He said: 'I am just going outside . . . and may be sometime. . . .' He went out into the blizzard and we have not seen him since. . . . We knew that poor Oates was walking to his death. . . . Though we tried to dissuade him we knew that it was the act of a brave man and a Christian gentleman. We all hope to meet the end with a similar spirit, and assuredly the end is not far."

The last entry in this journal of heroic sacrifice is dated March 29. It reads: "Since the 21st, we have had a continuous gale from WSW and SW. We had fuel to make two cups of tea apiece and bare food for two days on

the 20th. Every day we have been ready to start for our depot, eleven miles away, but outside the door of the tent it remains a scene of whirling drift. I do not believe we can hope for any better things now. We shall stick it out to the end of course, but we are getting weaker, and the end cannot be far.

"It seems a pity but I do not believe I can write more. For God's sake look after our people."

Seven months passed and then a searching party revealed the tragic story. On November 12, the tent was discovered. Three men were lying in their sleeping bags, frozen and dead. Scott had been the last to die. In one of his notebooks were found his dying words:

"Had we lived, I should have had a tale to tell of the hardihood, endurance, and courage of my companions which would have stirred the heart of every Englishman. These rough notes and our dead bodies must tell the tale, but surely, surely a great, rich country like ours will see that those who are dependent on us are properly provided for."

R. Scott

CHAPTER XX

THE WAR FOR THE POSSESSION OF ANTARCTICA

TO HUNT whales and seals or to discover and explore new lands, English men and English ships poured into the Far South, but of all the men whom the mysteries of the continent of Antarctica have drawn to the south, no two have left or will leave braver records than Sir Ernest Shackleton and Sir Douglas Mawson. Sir Ernest's achievements, his vision, his courage, his loyalty, have left a lasting impression in the memory of the world. Sir Douglas has not, of course, completed his investigations around the pole, but the many enlightening months he has spent in the Antarctic have already entitled him to a place in the first list of our great explorers.

It was in 1911 that Sir Douglas sailed for the Antarctic in command of the first expedition organized by the Australian Government, officially known as the Australian Antarctic Expedition. It was Sir Douglas's idea to attempt the use of an airplane in his explorations. With this in view, he stored aboard ship the first airplane ever taken into the Antarctic. When the wings were lost in an accident at New Zealand, Sir Douglas hoped that although the plane could not be flown, it might be used as an air tractor sledge. The attempt proved the idea impractical, and the plane was abandoned. The plans for the expedition had been comprehensive, however, and the loss of the plane did not materially affect them.

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AMUNDSEN'S ROUTE TO THE SOUTH POLE

This map shows each station made on the successful dash to the south pole. It also shows Shackleton's route, and where he was forced to turn back.



THE ONLY INHABITANTS OF THE CONTINENT OF ANTARCTICA

Millions of penguins populate the vast regions They sat and watched the invasions of Byrd, Amundsen, Scott, Shackleton, Wilkins, Mawson.

Mawson had sailed on the "Aurora," an old whaler which had been built in Dundee and in which compound engines developing 100 horse power had been installed. Her captain, who was second in command under Mawson, was John King Davis, a man thoroughly experienced in polar navigation. He and Mawson had planned to land one party at Macquarie Island, a second at Adélie Land, and still a third a thousand miles farther along the coast. Mawson, with Frank Hurley, the official photographer of the party, would make his headquarters at the main base at Adélie Island. The "Aurora" would return within a year to pick up the various parties and take them back home.

The first stop was made as planned at Macquarie Island, a wild, rugged spot known as "The Home of the Flying Dutchman," its shores strewn with the wreckage of scores of good ships which had been driven upon its rocks. A cave still remains on the island, littered with bones and moldy grass, where nine men and a woman who had survived one of these wrecks lived for two years waiting for rescue. The woman, poor soul, died on the day that rescue came. A humble wooden cross marks the spot where she was buried. It was on this island, too, that the penguin-oil factory was located which slaughtered for its use about 200,000 penguins a year until the Australian Government intervened and declared the island a sanctuary for the friendly little creatures.

Leaving Macquarie Island and sailing along the Barrier, Mawson discovered and named Commonwealth Bay off the coast of Adélie Land. Here he went ashore—the first man to set foot on the shores of Adélie Land—and here in the wild beauty of the virgin solitudes he and his comrades built the main base. The party included no carpenters, but each man bent to the work with a will.

Doctor Mertz, covering the roof, sat astride the ridge cap, while the learned bacteriologist, Doctor McLean, inside the house directly beneath him nailed on the thin ceiling with four-inch nails. "Suddenly," says Hurley, "Doctor Mertz sprang into the air with a wild yell, lost his balance, slid down the sloping splintery roof, clutched a stay that held the kitchen stovepipe, and took the chimney with him in a headlong dive into the snow dump. . . . Investigation disclosed two inches of a bristling nail which had been driven through the ridge cap by the scientist below, and which had caused the puncture which the aggrieved Mertz was vigorously rubbing." Laughter and good nature abounded in the camp in these early days, and the amused witnesses of Doctor Mertz's discomfort cut large leather medals which were presented with gallant formality to the chief actors in memory of the occasion.

When the necessary building had been completed, various parties of three each were sent out on exploration work. One attempted to reach the south magnetic pole but returned unsuccessful and suffering intensely from cold and hunger after a fearful trip over treacherous crevasses. A second party comprising Mawson, Doctor Mertz, and Lieutenant Ninnis, with two dog sledges, set off to the eastward and reached a distance of three hundred miles from headquarters before disaster overtook them. Ninnis had charge of the rear sledge. Suddenly one day the ice gave beneath him, and with the sledge he broke through and disappeared down a crevasse to which no bottom could be seen. Mawson and Mertz could distinguish two of the dogs, one dead and the other with a broken back, on a slight ledge about a hundred and fifty feet below the surface, but they could see no sign of Ninnis. For three hours they remained, calling at intervals down the precipice in the

hope that by a miracle Ninnis might still be alive, but no answer came from the awful depths. In despair Mawson read the burial service before he and Mertz turned back towards the base.

The lost sledge had carried a large part of the rations for the men and all of the food for the dogs. Mertz and Mawson were three hundred miles from camp with sufficient food for only a week and a half. One by one the dogs were killed and their bodies divided between the other starving dogs and the starving men. The men were reduced to mere skeletons. Horrible sores broke out in their flesh. In four weeks the party covered two hundred miles. Then Mertz, after a succession of convulsions from exhaustion and hunger, gave up and quietly slept his life away while at rest in his sleeping bag. The heroic Mawson was left to face the awful journey of one hundred miles alone.

Time after time he fell into crevasses and would have suffered the fate of Ninnis had not his sledge, by a miracle, always caught so that he was able to pull himself out by his harness. By a miracle, too, when only two pounds of food remained, he found a cache left by a rescue party which had set out in search of him when he failed to return. Refreshed with food, he made his way the remaining twenty-three miles to the Hut—only to find that the "Aurora" had landed and taken most of the men away with her on her homeward journey. He was forced to face another year in antarctic solitudes.

In England, Shackleton about that time proposed a daring plan in a speech before the Royal Geographical Society. He advocated an attempt to cross the Antarctic Continent from the Weddell Sea to the Ross Sea in an effort to solve the riddle of the nature of the continent as a whole. His venture received enthusiastic support, and the final

plan was worked out. Two ships, the "Endeavor," newly built in Norway, and the old "Aurora," which Shackleton purchased, were to be used. The "Endeavor" under Shackleton was to land on the shores of Weddell Sea, while the "Aurora" under Captain Mackintosh was to land a party on the opposite shores of the Ross Sea. Each party would advance, laying depots, until they met far inland.

On October 25, 1914, the "Endeavor" left Buenos Aires with Sir Ernest on board. Gaily, the men laid plans for the party of five which was to accompany the leader on the long eighteen hundred-mile journey across the continent by the south pole. Frank Wild, who had been with Mawson, was second in command, and Hurley was again official photographer.

Running before a raging blizzard, the "Endeavor" entered the ice-packed waters of the Weddell Sea. Here on January 18, 1915, she was frozen in. She lay helpless for eight months and was crushed and sunk late in October. In the 281 days of her imprisonment she had drifted 1,500 miles, and the members of the crew whom she had left to the mercy of the ice were now about 350 miles south-southeast of Paulette Island. Sir Ernest decided to attempt to reach this island. When seven sledges and two boats had been loaded with necessary supplies which had been saved from the ship, the men were ordered to abandon every ounce of superfluous weight. Sir Ernest himself took a handful of golden sovereigns from his pocket and dropped them through a crack in the ice, but he saved a pocket volume of Browning that was to be an inspiration to all of them in the time of their direst need. Hurley, the photographer, wept when ordered to abandon his sealed canisters of motion pictures. At first he consented but when the party was at a distance from the spot, he

returned with his dog team. The ship, held for a time by the ice which had crushed her, was not as yet completely sunk. Diving into the icy water of the hold, Hurley rescued the three tins to which he clung as to life itself throughout the desperate adventures which followed.

For six weeks Shackleton and his men hauled and drifted, making about one hundred and twenty miles. Delayed by great hummocks of ice which had been raised by the enormous pressure through which the region had passed, they realized that their food supply was decreasing rapidly. Seals, which were shot whenever possible, and the dogs, which were shot one by one, were used to augment it. In March the ice fields began to break up, and on April 9th the three boats were loaded and launched in the open sea in a despairing effort to reach Elephant Island, which lay over a hundred miles to the northward. After days of sailing from floe to floe with the boats roped together, exposed to the streams of icy spray and the bitter winds, with blistered and frost-bitten hands, parched throats, and swollen tongues, the men at last sighted, only thirty miles away, the seven-domed peaks of the island. With the strength of desperation they rowed for the shore.

Eight miles offshore, the boats fell into a current which drove them back with equal force to the pulling of the oars. Exerting their utmost strength, the weary men could approach no nearer. They were forced to lie at sea during the night, praying for a breeze that would drive them with sufficient force to overcome the current and permit a landing. In the morning a black cloud rose in the south. Shortly, great waves were running before the wind, running toward the shore, bearing the boats upon the crest.

"On through the dark we went," related Hurley, "now swallowed up in the blackness, plunging through a void of

waters swelling with the gale. Those that were able trimmed the boat, the rest lay corpse-like. Wild had not left the helm for forty-eight hours, and was now frozen so that his hands and arms would not function. He was relieved by 'Chips,' the carpenter, but, he, too, overcome with exhaustion, swooned at his post. Instantly the boat turned broadside on to the seas, a huge wave leapt aboard, drenching everything, and we were nearly swamped. Wild carried on again. In the darkness and agonizing cold the worn-out party fought the storm, chipping away the frozen spray and frantically bailing the boat to keep afloat. Every billow brought a spasm of misery. Each black gulf viewed from the crest of a spuming comber threatened to engulf us. Scourged by the winds and storm we wondered if ever the night would end. . . . As morning dawned we came close inshore at last . . . to find perpendicular mountain walls of ice rising sheer from the sea . . . a landing seemed impossible."

Search along the shore revealed an opening, however, and a small channel. Rowing into it, they came upon a fringe of narrow beach at the foot of the icy cliffs. Here at last they landed, staggering with fatigue and delirious with joy. They flung themselves into their bags and slept. During their sleep the tide rose, and thundering waves woke them and drove them cowering against the sheer wall at their back. Then Shackleton rose to the supreme heights of human courage. He determined to embark at once with five men in one of the small boats and try to make the island of South Georgia, more than seven hundred miles away. On Easter Monday, April 24, 1915, he disappeared into the raging seas. Wild, with twenty-one men, remained on the narrow shore to await the outcome of their leader's wild adventure.

"Here we were," said Hurley, "a party of twenty-two, maintaining a precarious foothold on an exposed ledge of barren rock, in the world's wildest ocean. Our leader had departed with the pick of the seamen. Of our party one was a helpless cripple; more than a dozen were disabled by frostbite; and some were, for the time, crazed by their privations. Our refuge was like the courtyard of a prison —a narrow strip of beach two hundred paces long by thirty yards wide. Before us the sea pounded our shore with angry tumult . . . with a noise like the churning of a monstrous mill. Behind us the island peaks rose three thousand feet in the air, and down their riven valleys, across their creeping glaciers, the wind devils raced and shrieked, lashed us with hail, and smothered us with snowdrift."

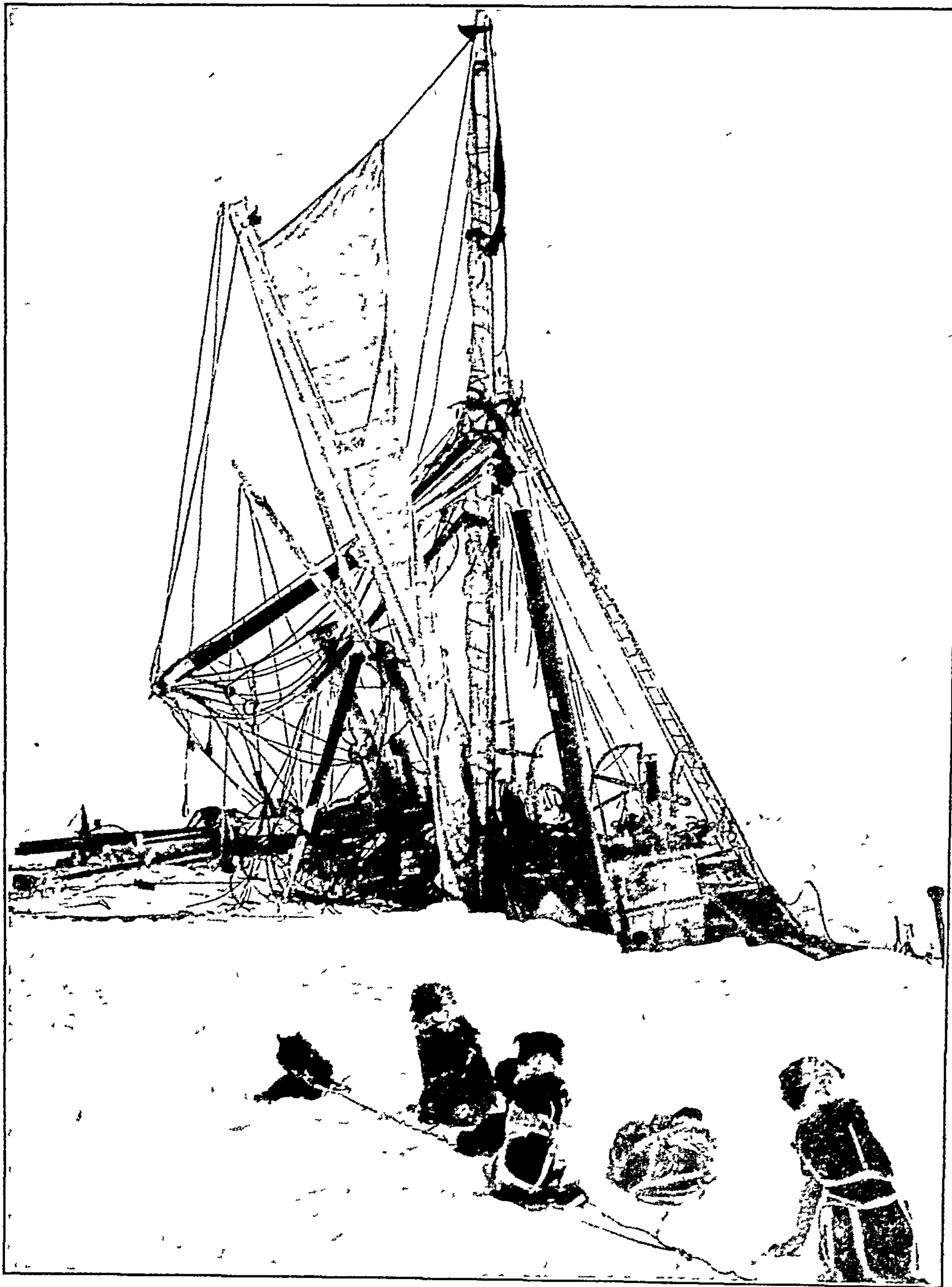
So they lay, completely helpless, at the mercy of the Providence which so far had guided them through every peril, as though to set a record for all time of what man might suffer and survive through a resolute spirit and a hopeful heart. Beneath the shelter of the two overturned boats they huddled together in a space eighteen feet by twelve and less than five feet high. What seals and penguins they could shoot provided them with oil for their cooking, heat for their home, and food for their bodies. They boiled their pipes and in the bitter juice soaked the hay from their shoes, rolled it in leaves from an odd volume of the *Encyclopædia Britannica*, and behold! there were cigarettes of unique flavor. With indomitable courage, these men even composed doggerel and nonsense verses and sang them as they lay in their refuge:

The wall's without a single brick; the roof's without a tile;
But nevertheless, I must confess, by many and many a mile,
It's the most palatial residence you'll find on Elephant Isle!

Shackleton, meanwhile, in the little boat barely twenty-three feet long had fought his way against storm and sea for more than seven hundred miles, only to land on the desolate coast of South Georgia and find unmapped mountains lying in his path—mountains never crossed by man! Without hesitation he started for their crest with his five exhausted comrades. After terrible perils he and two others worked through the mountain passes and down the fearful slopes to the Stromness whaling station on the other shore. With the aid of Captain Thom of this station they first returned to three men who had been left behind in an ice cave, and then set about the rescue of the twenty-two men seven hundred fifty miles away on Elephant Island.

The "Southern Sky," a steel whaler under Captain Thom, got to within seventy miles of Elephant Island, but at that point it was stopped by the ice and forced to return to the Falkland Islands. In the Falkland Islands, Shackleton boarded a steel trawler furnished by the Uruguayan Government and sailed again for Elephant Island. He came this time within twenty miles of the survivors, but again storms and ice forced him back. Returning to Punta Arenas, he started a subscription among the British residents by which he raised $7,500, which enabled him to start for the third time in a small schooner called the "Emma." One hundred miles from the island the vessel was badly damaged by ice, and once more the rescue party was forced to turn back.

Disheartened, perhaps, but not beaten, Shackleton appealed to the Chilean Government, which furnished him with a small steel vessel, the "Yelcho." This vessel was unsuited to Shackleton's needs, but it was all that was available at the moment, and in it he reached his men. After 137 days of worry and torment they opened their



CRUSHED BY THE ICE IN WEDDELL SEA

Shackleton's ship, the "Endurance," sank in October, 1915 Twenty-eight men escaped to floating ice Photographed by Frank Hurley



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INTO SURGING SEAS ON A 750-MILE JOURNEY

Shackleton and his brave crew setting out in danger of drowning, freezing, starving, and attack by whales, to rescue men imprisoned on Elephant Island.

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TWO WEEKS BEFORE HIS DEATH—SHACKLETON'S LAST VOYAGE

On the "Quest" on a 30,000-mile exploration into the Antarctic. Photographs by Frank Hurley.

eyes to see his ship in the harbor. Beset by every obstacle that nature could raise against him, their leader had won on his fourth attempt, and they were saved! Returning home, many of these men who had survived the terrible hardships of this experience entered the World War and gave their lives at last for the country they had fought so hard to honor.

When the war was over, Shackleton organized still another expedition to explore the little-known land of the Enderby Quadrant area. His funds were limited, and he could afford only a small vessel, the "Quest." In it he left England in the fall of 1921. In the harbor of the island of South Georgia he died suddenly in the night of January 5, 1922, on board his ship. His death cast a gloom over England. Like Scott, he had died on the field of action, and the British Government wished to bring his body home for an honored burial. "I know he would choose to lie in the antarctic silence that he loved," replied his grief-stricken widow. "It is the last wish we can grant him."

So the great Shackleton lies on the island of South Georgia. His cairn, raised by the loving hands of his comrades, faces those mountains which he was the first and the last to cross in his heroic journey to save his men. No grave on earth—not even Scott's—lies in a more desolate spot.

Chapter XXI

HOW BYRD ENTERED THE ARENA OF THE EXPLORERS

THE GRAND CLIMAX to this great human drama—this fight for the ends of the earth—brings us face to face with the stalwart figure of Rear Admiral Byrd. How did Byrd come to be an explorer? What started him on his epoch-making career? What is the background behind him?

It all began more than two hundred fifty years ago, when a gentleman by the name of William Byrd landed on the shores of the James River in Virginia. He was a dynamic gentleman, picturesque and explosive, with little respect for force and less for Indians. Tradition in Virginia has it that his first act upon landing in the province was to stride up to an armed redskin and accuse him of "staring at him too boldly." His further remarks are not chronicled, but it is said that from that day the Indians for miles around knew that Colonel Byrd was living on the shores of the James. From that day, too, the blood of the Byrds flowed in Virginia, no less picturesque and no less dynamic, though perhaps not so explosive, as that of the progenitor.

The Revolution of the Colonies against England found the Byrd family in both camps. Certain Byrds followed General Washington, but others, stanch Royalists, stood by their king, and the single-handed "Damn you, come on" of Francis Otway Byrd in defiance of a whole corporal's guard of "Yankee rebels" in 1775 sounded at the least

reminiscent of his explosive ancestor. By 1812, the family was of one mind, and the war with England for freedom of the seas found the Byrds fighting wholly on the side of the States. The Civil War, fratricidal tragedy, again divided them, as it divided even the Lincoln household in the Nation's White House, some of the family with Lee and some with Grant. Reunited when peace came, they fought again as a whole for America in the war with Spain.

Against this background of strong-minded ancestors, three sons grew up in the latter half of the nineteenth century. They were Tom, Dick, and Harry Byrd, and as such they were known to all Virginia. Trouble with one meant trouble with all, and this many a new boy in town soon discovered. When grown, Tom, the youngest, remained on the "plantation" at Winchester; Harry, the oldest, became Governor of Virginia; Dick joined the Navy, became a flyer, an explorer, and an admiral.

Like many aëronauts, Dick's first aërial experiments were undertaken with kites at the age of eight. A small hill back of the family manor served his purposes for the time, and from it he flew all kinds and sizes of kites. By the time he was ten years of age, the hill and the manor had grown too limited for his expanding curiosity. Wisely, as the event proved, though with many misgivings, Mrs. Byrd consented to allow him to go alone to visit Judge A. C. Carson, a friend of the family who was at that time presiding officer over a judicial district in the Philippines. "I will never know a greater thrill than when I started out with my shiny new suitcase packed with all necessities, including a new jackknife and a ball of string," Admiral Byrd has since admitted.

Dick crossed the continent safely. His trip across the Pacific was uneventful until he reached the roadstead

off Nagasaki, Japan. There the ship struck a typhoon, and Dick might have seen dozens of ships wrecked had he not been shut up in the smoking room. He was allowed to come out only when the ship rode safely at anchor. Ashore in Nagasaki, he rode for ten days in jinrikishas and rambled the quaint and curious streets of the town. Then, after steaming along the China coast, the boat landed in Manila, where he was met by Judge Carson.

His visit was a tremendous success. The excitement stirred by visits to famous historic spots of the Spanish-American and Philippine wars was raised to fever heat by an insurrection of the Filipinos. Indulgent army officers even allowed him to ride out on a pony to witness the capture of a native village.

When the time came to return to America, Dick decided "to go a new way." He proceeded on around the world—through the Indian Ocean and the Suez Canal, across the Mediterranean and the Atlantic Ocean to New York, and back home by train. In Virginia, even at that age, he was unique. He had circumnavigated the globe at twelve years of age—alone.

The world was now a land of conquest. The blood of the explorer surged through Dick's veins. Magellan, Balboa, De Gama, Columbus, were his heroes. The paternal Byrd, however, believed in education, even for explorers. Accordingly, Dick went to Lexington, where General Robert E. Lee lay entombed in the memorial chapel of Washington and Lee University, and entered the Virginia Military Institute, where Stonewall Jackson was once commandant. Now, history stirred Dick's imagination. The spirit of liberty awakened within him. With the cadets as his forces, he led a revolt against the authorities with a bill of rights for "better food and more freedom."

Adventurous Dick now entered the historic University of Virginia in beautiful old Charlottesville, near the home of Thomas Jefferson. His parents had planned for him to study law and enter the offices of his father, Richard Evelyn Byrd I, who was a noted member of the bar in Virginia. Instead, Dick played quarter back on the football team and pursued a keen interest in mathematics and engineering. His father, bowing to the inevitable, secured for him an appointment to Annapolis.

Richard Evelyn Byrd II entered Annapolis in 1908. Unlike most men of his age, he was already certain of his interests. He might safely, too, have been certain of his capacities. His practical mind quickly grasped the problems of engineering, and he soon stood near the head of his class in the science of navigation. He was equally successful in athletics. The Navy still talks of the day when Dick Byrd took the ball in the last few minutes of play, with the score tied, and ran it back for the length of the field, scoring a touchdown and winning the game for the Navy.

Athletic success probably determined the mold of his career. During a game with Princeton, his leg was fractured. Again, practicing a dangerous and difficult stunt of his own devising in his last year at the Academy, when he was the star member of a gymnasium team which was out for intercollegiate honors, he fell to the floor from near the top of the gymnasium and fractured his leg a second time. By constant study while in the hospital, he managed to pass all of his examinations and graduate with his class, the class of 1912. Immediately taking his rank as ensign, he was assigned to a battleship for the regular course of training given to a junior officer. During the five years which followed he built up a record that was to mean much to his future career, but the broken bones in

his leg failed to knit. During the long watches when it was necessary for him to stand on his feet for hours, the whole leg ached and pained continually. It was injured still further by a fall down a hatchway on a dark night. As a last resort, Navy surgeons decided to nail the bones together. The operation was unsuccessful, and the authorities decided to retire Byrd from active duty.

When America entered the World War, Byrd immediately answered the call to the colors and was assigned to the organization of the Rhode Island State Militia. Shortly afterwards, his commission was extended to organization in the training camps of the entire country, but his active spirit revolted against sitting at a desk in Washington, when others were fighting in the front lines. He begged for a chance to enter the aëronautical school at Pensacola. As he aptly put it, "You don't fly with your feet." The transfer was arranged and he was sent down to the naval training station to learn to fly.

Flying at that time was much more dangerous and difficult than it is today. Engines were imperfect and there was constant danger of motor failure in the air. Many flyers were killed or crippled for life. As Byrd crossed the flying field on his way to report to the commandant on his first day, he witnessed a crash in which two young naval officers were killed. That same afternoon he went into the air and was handed the controls for the first time. After seven hours in the air with an instructor, he was sent up alone. He still maintains that in all the thrills that have since come to him there is no thrill like taking up a plane alone for the first time.

As soon as he was proficient in the management of a plane, it became a part of his duty to investigate the causes that lay behind the numerous crashes. His earlier

training in navigation led him to attempt, too, to devise methods of flying out of sight of land, a feat which up to that time had never been accomplished. He demonstrated the value of his system of air navigation by making a successful long flight out of sight of land and returning safely.

One serious accident fell to his lot during these days, a head-on collision over the sea with another pilot in which both planes were demolished. By a miracle, the pilots, swimming clear of the wreckage, although badly shaken and bruised, escaped. "I had just got off the water and was intent on gaining speed so I could zoom upward," Byrd relates. "The first thing I knew I saw almost directly ahead of me a plane plunging down on the water out of the sky. Its pilot was a beginner. He had been intent, I think, on gauging his distance from the water, so as to make as perfect a landing as possible.

"The crash was deafening. We were just enough out of line to make our wings lock. As a result both planes flung around with violent centrifugal force that was the result of the 120 miles aggregate speed we were traveling at that moment. Both planes were demolished. I fell dazed and bruised into the water. A few minutes later the rescue party hauled us into the speed boat, safe and sound, but very much crestfallen at the damage we had done to our planes."

Death apparently had no terror for him. In the spring of 1918, he requested permission to fly one of the Navy planes, the NC1, across the Atlantic and deliver it to the French. This act, he argued, would have considerable effect on the morale of the German army and of the Navy, which was concentrating its efforts just then on an effective blockade. He was persistent in his demand to introduce a new factor into warfare by flying across the

Atlantic to France. He spent much time and labor on his plans, completely charting the course, studying weights, food requirements, clothing, gas supply, weather conditions, and safety measures in case of a forced landing. During his investigations he began the experiments which resulted in improvements to the bubble sextant which was of such great value to him on his north and south polar flights later on. The Armistice brought an end, however, to his hopes.

Meantime, he had been ordered to Nova Scotia, where he established two airplane stations to patrol the coast for submarines and to train men who would later be sent to the war zone for active service. In addition, he trained men to take parachute jumps from captive balloons. Not all of his duties were in the course of routine, however. A submarine was sighted in the harbor one day before he had received his supplies of ammunition. Borrowing a couple of depth bombs from a destroyer, he attached them to the bottom of his plane and went out in search of it. Depth bombs are not made to be jolted around by an airplane, and his safe return has always been looked upon as something of a miracle.

When the flying base was discontinued after the war, Byrd went back to Washington. He was accompanied by the enormous Great Dane, "Violet," which had been given to him by the men at the base who knew his fondness for dogs. "Violet" was a ground dog, much too heavy to be taken on any of her master's trips. In spite of her modest name, she weighed nearly as much as a young bull. One wag of her mighty tail in an airplane might easily knock out both sides of the cabin.

Byrd now possessed four citations. For his work at the Nova Scotia base, he had received two foreign citations: commendation from Admiral W. L. Grant of the

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NIGHT PHOTOGRAPH OF SHACKLETON'S SINKING SHIP

Her crew were set adrift 180 miles from the nearest land

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A LONE GRAVE IN ANTARCTICA

Here lies Sir Ernest Shackleton under this cairn of great stones gathered by his comrades.
Photographs by Frank Hurley.



SIR ERNEST SHACKLETON, WHO DIED ON HIS SHIP IN ANTARCTIC SEAS

He wrote many letters to his children promising to tell them glorious stories of adventure when he returned home—but he never came back.

British Royal Navy, December 21, 1918; and commendation from the director of the Royal Canadian Air Service, August 27, 1918. Twice earlier he had received citations from his own government: for heroism in saving a man from drowning, July 16, 1914; and for saving a man from drowning, August 15, 1914. But his adventurous spirit was not content with mere honors. He had a definite plan of action and he intended to "see it through." There was no stopping him: "The flight across the Atlantic *must be made.*"

Confronted with unswervable resolution, the government conceded. The Navy decided to proceed with the transatlantic flight, using the sea planes NC1, NC3, and NC4, and the tiny dirigible, nonrigid gas bag C5. But the official order which accompanied the decision dealt a staggering blow which would have knocked out any man who did not have the Byrd stamina. It declared that none of the men who had seen foreign service would be allowed to go on the flight, thus preventing Byrd from even hoping to join the very adventure which he had himself proposed and for which he had worked out the plans.

Hastily rousing himself from a severe attack of influenza, Byrd had himself transferred to the detail which was working up the final preparations. When these were completed on May 8, 1919, he accompanied the three seaplanes to Halifax, where the last plans were made for the hop-off—without him. At the last moment, orders came from the Navy Department allowing him to take command of the C5 and join the flight. The C5 was not in Halifax, and it was doubtful whether she could get there in time. Then a radio message flashed into Halifax from Washington. These were the words: "The C5 has broken loose from her moorings in a storm and blown away with

no personnel aboard her." The seaplanes set off on their journey. As they soared into the clouds and were lost in the mists over the Atlantic, the man who had planned the flight and worked for it for many months stood silently on the beach at Nova Scotia.

Again Byrd returned to Washington. On July 30, 1921, he proposed that he should be allowed to make a non-stop flight alone across the Atlantic in a JL-type plane. After much discussion, the proposal was referred to Theodore Roosevelt, Jr., then Assistant Secretary of the Navy. With the vigor of conscientious convictions inherited from his dominant father, Roosevelt put his fist down solidly. In Rooseveltian expletives he declared that airplane engines were unreliable and that the dangers of the trip were too great under the conditions obtaining at that time. Greek had met Greek. Byrd, too, was a youth of iron will, not of the explosive Rooseveltian mold, but of silent decision. A born diplomat with gentility as his weapon, and with the force of a courtly personality, he appealed to Admiral Moffett and obtained permission to join the staff of the ZR2, which was being sold to the United States for $15,000,000. This giant dirigible, built in England, was the former British R38, her name having been changed to the ZR2 at the time of the proposed sale. She was now about ready for the test flights preparatory to her flight across the Atlantic.

Byrd reached London August 20, 1921, and immediately applied for a place on the list of those making the trial flight scheduled for the next day. This was arranged Missing the morning train, he arrived at the field too late to make the flight. By two minutes he had lost his billet on the great ship filled with officers, observers, and crew. He returned to London. Hardly had he arrived when he

heard the newsboys crying the extra: "Tragedy in the air! Great Airship Crashed! Crew KILLED!" The ZR2 had broken in half, caught fire, and fallen to the ground a total wreck. Only five men were saved from all on board.

The melancholy task of looking after the American interests involved fell upon Byrd's shoulders. As soon as it was completed, he returned to the United States. The tragedy weighed heavily upon him.

Chapter XXII

BYRD'S GREAT FLIGHT OVER THE NORTH POLE

HONORS and appointments at home had now ceased to hold Richard Byrd's interest. The craving for exploration was in his blood. The catastrophe in England, his own chance escape from being listed "among the dead," had only strengthened the determination to achieve his ends. Minor disappointments, obstacles, accidents, personal danger, were of no consequence. Going conscientiously about his tasks, he waited for an opportunity.

Upon his return from England, he resumed for a time his duties as liaison officer with Congress, where he made many stanch friends. His mastery of men, his genius in navigation and his consummate skill in organization were now recognized in Washington. Relieved as liaison officer, he was given the responsibility of establishing training stations in different parts of the country where the air pilots who had come out of the war might keep in training and where young men who looked forward to a career in the air might be educated. By special act of Congress he was promoted to the rank of lieutenant commander.

Then fate, or circumstance, favored him. In Washington, he met the man who was to direct the course of his action, Captain Bob Bartlett, "the greatest seafaring man that ever sailed into the Arctic." Captain Bob was the man who had taken Peary into the frozen seas on his discovery of the north pole, and he was now planning a

private air expedition to explore a million square miles of unexplored territory in the arctic circle. Byrd agreed to join him. Preparations were in swift progress. The first step toward Byrd's goal seemed in sight, when their plans for adventure received a set-back. Finances for the expedition failed to materialize.

Undaunted, Byrd and Captain Bob proposed to fly across the north pole in the Navy dirigible "Shenandoah." The President was unconvinced, failed to indorse the project, and the matter was dropped. But Captain Bartlett and Commander Byrd had faced too many obstacles in life to submit tamely to disappointments. They simply reorganized their forces and made the attack from a new angle.

Faith was rewarded in the appearance of another such as themselves, Donald B. MacMillan, the Scot-American, who had traveled the trails of the Far North with Peary and Bartlett. Fortified by the indorsement of the National Geographic Society, with the planes NA1, NA2, NA3, borrowed from the Navy, and with funds which they secured from Edsel Ford, John D. Rockefeller, Jr., and others, MacMillan and Byrd set out on the voyage. On June 20, 1925, they sailed with the schooner "Bowdoin" and the steamer "Peary" from the Bay of Wiscasset, Maine, bound on a three-thousand-mile voyage to the most northern outpost in the world, Etah in Greenland.

At last Byrd was in his element. He was with "adventurous souls" for whom he felt the kinship of brotherhood. He was an explorer. With him was Floyd Bennett, a young flyer whom he had found in the Navy, and whose friendship he valued more and more highly as the months passed.

Fighting their way against giant bergs through the ice-bound seas, the ships reached Etah August 1, 1925, and in four days Byrd and Bennett were in the air. There were fifteen days of summer left in which flying might be done. Of these, Byrd records that only on three and three-fourths days was it possible to fly at all. "Two were fair days and one indifferent."

Their first long flight was over Ellesmere Island. A herd of walruses rose within a few feet of them, as they were preparing to take off from the water. Enraged at the strange sight of the plane, they dived toward it. Byrd probably avoided serious difficulty by giving the motor the "gun," kicking up so much noise and turmoil that the herd was frightened off. Soaring over Cape Sabine, where eighteen of Greely's expedition had died slowly of starvation, they crossed in thirty minutes the rough stretch of territory through which Hayes the explorer had taken more than a month to work his way. As Byrd flew over the mountains of Ellesmere Island, he determined that he would order no one to fly over that territory, such a flight being entirely too dangerous. So far as he could see, there was not one single spot where a landing would be possible.

Altogether the explorers covered with the NA3 "more than 2,500 miles in every kind of weather." The plane seemed to be in as good condition as on the day of the first flight, when, with the NA1, it set out on August 20, 1925, on the last exploration. The destination was Iglood-ahouny, about fifty miles south of Etah. Much to the surprise of everyone, the NA3, with Reber piloting, was scarcely in the air before she "threw" a connecting rod and made a forced landing in the water, from which she was towed back to the ship.

Byrd, in the NA1, stopped long enough to see Reber safely on his way to the ship, and then continued his flight. Arriving at the Eskimo village, he landed and ate dinner with the natives. At 3.15 he took off once more and climbed to 1,000 feet, from which altitude he could see a hundred miles around him in every direction. Before him lay one of the great natural wonders of the world, "the Greenland ice cap, 1,500 miles long, and about 500 miles wide, with an area of 700,000 square miles of solid ice and averaging a mile in height—the world's great iceberg factory." He returned from his flight "almost literally frozen stiff," but inflamed with the conclusion that "aviation could conquer the Arctic."

Through the weeks that he spent with him, Byrd saw Bennett developing into one of the "great air pilots of America." The two became inseparable comrades. During their flights, they made many experiments leading to discoveries which were invaluable to them in their later expeditions together. They tried out the bubble sextant upon which Byrd had been working, and the sun compass developed for them by Bumstead. As they flew together they entered into a compact: "We will make the first flight in the world's history over the north pole."

Two months later, they were back in the United States. They had decided to make their flight "on their own." They applied to the Navy Department for leave. It was granted to them. They set about the task of raising funds and, perhaps to their own surprise, men who had the faith in them which they had in themselves contributed over $100,000 on the prospect of their success. In recognition of the aid which Edsel Ford contributed to the expedition, they named their trimotored Fokker, the "Josephine Ford" after Mr. Ford's three-year-old daughter.

Through the Shipping Board, they obtained a steamer, the "Chantier," loaded their plane aboard it, and on April 5, 1926, with Byrd in command of the expedition of fifty men, sailed from New York for Spitzbergen.

The "Chantier" was under the command of Captain Brennan, a former Naval Reserve man. Mulroy was her chief engineer, and Hanson was at the radio. These three men, now headed with Byrd for the Arctic, would two years later find themselves sailing with him from the harbor of San Francisco, bound for the other end of the world, the Antarctic. On the arctic voyage, Hanson, who was a civilian from the Naval Research Laboratory at Washington, stowed away, and it was through Byrd's intervention on the return of the expedition to the United States that he was saved from punishment.

The long voyage into the arctic seas held no tedium for the confident crew. Hope rode high. Geisler, a volunteer, took oath not to shave again until Byrd had flown over the pole. No one doubted the outcome of the venture. Then, on April 29, 1926, the "Chantier" sailed into Kings Bay at Spitzbergen to find the only anchorage occupied by Amundsen's ship, the "Heimdal." It began to look as though Geisler must face some inconvenience in life.

Amundsen, discoverer of the south pole, meant now to make the first flight over the north pole. His preparations were practically completed and he was ready at the first favorable moment to start in his giant dirigible, the "Norge."

Fate had thrown down the gantlet to Byrd and Bennett. They accepted the challenge, and the race was on. The Americans knew that they could not have found a more formidable antagonist in the whole world, but the



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FIRST TO FLY TO THE NORTH POLE—May 9, 1926

Byrd (right), Bennett (left). They flew from Kings Bay at Spitzbergen, circled the north pole, and returned in fifteen and one-half hours

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THE "JOSEPHINE FORD" DROPPED THE AMERICAN FLAG ON THE NORTH POLE

With indomitable courage Byrd and Bennett sped on to their goal and then returned in safety

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AMUNDSEN CONGRATULATING BYRD ON HIS RETURN TO HIS BASE

The great Norwegian, beaten by three days, but always a true sportsman, grasped Byrd's hand when he came back victorious

character of Amundsen, his manhood and sportsmanship, won their immediate admiration and respect. It was well, indeed, that Byrd did not then know that in three short years the magnificent Norwegian would be lying in an ice-covered grave in the Arctic, while he, Byrd, would be following the Amundsen trail at the bottom of the world.

With amazing speed and skill, the Navy men in Byrd's expedition constructed a pontoon by lashing four small boats together and decking them over with rough plank. On to this improvised raft, the "Josephine Ford"—sole hope of the expedition—was lowered to be towed to shore amid the drifting ice. It was a desperate expedient. Collision with an ice floe, the slip of a binding rope, the rising of the wind—any one of almost numberless mishaps—would have ended the expedition then and there and sent the party home in failure. "It would have given some of our creditors St. Vitus's dance," Byrd recorded later, "to see us bring our expensive plane ashore through half a mile of loose ice. We made a raft that did the trick after some hair-raising set-backs when the big floes started out with the tide."

Even with the "Josephine Ford" ashore, however, it must have looked to Byrd as though the risk and strain of the venture had just begun. On the trial flight the plane refused to leave the ground. Three times Byrd and Bennett plunged into a snow bank at the end of the runway, all but crashing in an upset that would have wrecked their plane. When, finally, the machine did rise, three of the available sets of airplane skis were broken in as many landings. There was no lumber to make more if the fourth set should go, foı the ingenious Navy workmen had made the substitute skis in the first place from the oars of the small boats.

On May 8, the flyers decided to risk everything on a last try. Crash, once for all, or go over with the full load. The runway was carefully iced, Byrd himself working beside his men with a huge ice pick. It was nearly midnight. The snow was hard and firm. Commander Byrd and Pilot Bennett had not slept for thirty-six hours. Just before 12.30 A.M., May 9, they climbed into the plane. With a load of ten thousand pounds, the two men raced down the runway. Bennett opened the throttle for full speed. The "Josephine Ford" rose like a gull over the peaks of jagged ice that would have meant destruction.

Off on the long flight to the north pole! Their very lives depended upon their ability to find it. Should they miss the pole, which they must use to establish their position, could they find again that one small spot of Spitzbergen in the hundreds of thousands of miles of ice and snow that lay about them? Byrd relieved Bennett at the stick so that he might dump more fuel into the tanks from the supply which they carried in five-gallon cans. Below them, to the left, lay the trail of Peary, who had spent his life to accomplish what they hoped now to achieve in a few hours. Pinned to his shirt pocket, Byrd carried a coin that had been pinned to Peary's shirt pocket on his own journey to the pole.

Suddenly Byrd saw that the oil tank of the starboard motor had sprung a leak. Should they stop to fix it? It was a momentous decision. Should they land? They might be unable to rise again, and the picture was not a pleasant one—the two of them wandering in hunger and desolation in the vast arctic wastes, dying of starvation and exhaustion. They sailed on.

They neared their goal. Byrd has described the thrilling moment: "At 9.02 A.M. (May 9, 1926) Greenwich

civil time, our calculations showed us to be at the pole. The dream of a lifetime had at last been realized.

"We headed to the right to take two confirming sights of the sun, then turned and took two more. After that we made some moving and still pictures; then went on for several miles in the direction we had come, and made another larger circle to be sure to take in the pole. We thus made a non-stop flight around the world in a very few minutes."

Flying "around the world in a very few minutes," they lost a whole day in time, to regain it at the end of the circle. Direction was topsy-turvy—north one instant and south the next. "No matter how the wind strikes you at the north pole it must be traveling north, and however you turn your head you must be looking south."

The flyers left confusion behind them. Their task was accomplished. Could they find Spitzbergen again? Only such accuracy as that of which Byrd had proven himself capable at other times in other places could bring them back to their landing. He turned to the sextant. It fell from the table, breaking the horizon glass. Examination proved it was completely useless. Byrd must steer by the sun alone. He did. A marvelous feat of navigation brought the "Josephine Ford" straight as an arrow to Spitzbergen at 3.30 P.M.

The two men had flown to the top of the world and back, 1,600 miles in 15 hours 30 minutes. Their comrades were at dinner, not expecting them for many hours. It was Amundsen, Ellsworth, and the Norwegians who greeted them as they made a perfect landing and emerged from the plane, their eyes dazed and their bodies numb from lack of sleep. Amundsen grasped Byrd's hand as the men of the Byrd expedition surged around him, shouting, cheering, lifting him in the air.

"I was at dinner," Amundsen said later. "Someone at the table remarked that if Byrd was to have the good fortune of getting back it was about time he was returning. The words were hardly out of his mouth when we heard the hum of his motor. We leaped from our chairs and left our unfinished dinner. We led the dash up to the place where he would land.

"It so happened that Byrd's own comrades were at dinner aboard the 'Chantier' at her anchorage. It thus so happened that Ellsworth, I, and our Norwegians, formed the majority of those at the landing place to greet Byrd and Bennett with our cameras as we ran out, and the only pictures of Byrd's triumphant safe return are the ones we took. I was one of the first to shake Byrd's hand as he stepped out of the plane and to congratulate him wholeheartedly on the success of his flight. I then turned to my companions and called on them to give nine good Norwegian cheers for Byrd and Bennett—which they did with a will!"

Two days later, Amundsen, with Ellsworth, the American, and Nobile, the Italian, crossed the north pole in the giant dirigible "Norge," the first airship to fly entirely over the top of the world. Byrd's crew cheered wildly as the ship rose into the air at 4.55 A.M., New York time, May 11, 1926. Crossing the north pole at 10.30 P.M., the dirigible landed on May 14 far over in Teller, Alaska. Two years later, Nobile was to crash with the "Italia" in a second attempt to cross the pole. and Amundsen, in search of him, was to die.

From the moment he was released from the hands of his joy-mad comrades, Byrd was a national hero. As the "Chantier" steamed across the Atlantic toward New York, radio messages arrived from all parts of the world, carrying

congratulations, honors, propositions of all descriptions, orders—an overwhelming mass of confusion and good will.

When the ship arrived in New York Harbor on June 22, 1926, the victors were greeted by an ovation greater surely than any ever extended to a Caesar. Guns boomed, whistles shrieked, and steamships from many nations opened wide their brazen sirens, as convoys of airplanes whirred overhead and warships escorted them up the harbor. On shore, New York, with flags flying, opened its arms with a Roman holiday. Through canyons of giant skyscrapers in lower Broadway the procession moved on under a deluge of confetti from thousands of crowded windows. More than three million people thronged the streets, cheering wildly as the two comrades, Byrd and Bennett, rode on to City Hall to receive the keys to the city.

The climax of public approval and rejoicing was reached on June 23 in Washington when, before a distinguished audience of more than six thousand people, Byrd received the Hubbard Gold Medal from the hands of President Coolidge. "This man," the President said, "with a record of distinguished service in the development of aëronautics, has by his crowning act added luster to the brilliant history of the American Navy."

Under the storm of popular applause, Byrd remained a modest, gallant gentleman. He submitted his records at once through the Navy to Dr. Gilbert Grosvenor, president of the National Geographic Society, who appointed a committee for their examination. With the utmost care and sincerity, he saw that his comrades were not forgotten and that each received his share of homage for his work In everything he did and in all of his speeches he made it clear that he felt that he was only holding for the moment the flag which was the symbol of American progress and good will.

CHAPTER XXIII

WORLD ACCLAIMS BYRD AS THE "GREATEST EXPLORER OF MODERN TIMES"

FIRST MAN in the world's history to fly over the top of the world, Richard Byrd evolved in his mind three more epochal achievements.

"I will fly over the Atlantic Ocean from the Western Continent to the Eastern Continent," he declared. "I will then go to the bottom of the world and fly over the south pole." The third achievement is a secret that he has not yet revealed.

The success of his great accomplishments but sharpened his ambitions. His spirit had never submitted to the fate of being left behind on the flight of the American naval planes to Europe, while Roosevelt's refusal to grant him authority to attempt the first flight across the Atlantic had had little effect on his will to do so. The fate of the dirigible ZR2 was tragic but, to Byrd, not final. The time had come when he proposed to keep his promise to himself to fly the Atlantic.

On their way back to America from the north pole, he and Bennett, who had enthusiastically agreed to join him, had drawn up plans for the flight. In New York, these plans were laid before Rodman Wanamaker, who had a deep interest in the commercial possibilities of aërial navigation. Mr. Wanamaker agreed to back the flight and appointed Grover Whalen, who was later to become police commissioner of New York, as his representative in the preparations.

Byrd decided to use in the flight a gigantic trimotored plane designed by René Fonck, the Frenchman. A very long runway would be required for the plane to rise from the ground with the heavy load which it must of necessity carry. Mr. Whalen, accordingly, leased Roosevelt Field on Long Island in New York, but even then it was necessary to build a small hill at the end of the long runway in order to get sufficient impetus to raise the plane from the ground.

At length, all was ready for the final trial flight. René Fonck sat at the controls. Byrd, Bennett, and Noville climbed aboard. The great plane shot down the runway into the air. It was a beautiful picture for the onlookers as it soared away into the sky, but Fonck at the controls shook his head. He could tell, from the way the plane handled, that it was nose-heavy and that there would be trouble when he attempted to land. The men braced themselves for the shock as the plane neared the earth. Going at the rate of more than a mile a minute, the wheels struck the ground. To the horror of the watching crowd, the nose tipped and dug into the earth, throwing the big plane completely over. Fonck jumped clear and was uninjured. Byrd's arm was snapped like a pipestem by the body of Noville, who was thrown forward by the terrific impact. Noville was injured internally. Bennett, who had been trapped in the rear of the plane, was horribly mangled. Both his arm and his leg were smashed. It was a year before he was released from the hospital.

The crash defeated Byrd. He would fly the Atlantic but he would not be the first man to fly it. It was necessary for his plane to be rebuilt, and contenders for a prize of $25,000, which Raymond Orteig had offered for a New York to Paris flight, were arriving every day. Byrd, who was not a contender for the prize, had been weeks ahead.

He was now weeks behind. Before him were Noel Davis, René Fonck, Clarence Chamberlin, and an unknown young mail pilot from the West named Lindbergh. While waiting for the rebuilding of his own plane, Byrd coached the contestants in navigation and even loaned Roosevelt Field to Lindbergh for the start of his flight. Finally his own plane was completed and ready for the christening ceremony which was to precede the second start. May 21, 1927, was set as the date for this christening.

On May 20, Lindbergh, the unknown youth from the West, startled the world. Shooting into the skies like a rocket from the field where Byrd and the other contenders stood waiting, he disappeared into the mists of the morning. Hours of silence followed, hours fraught with disaster for "The Flying Fool." Sure death was predicted for him. A funeral pall fell over Roosevelt Field.

On the following day, two thousand guests assembled at the field for the christening of the Byrd plane, "America." French and American flags draped the official stand. The opening speeches began. Suddenly, a flash from the radio across the Atlantic announced that Lindbergh had landed on Le Bourget Field at the gates of Paris. "The Lone Eagle of the Clouds" had astounded the nations.

First to acclaim the hero, Byrd turned the christening ceremonies of the "America" into a celebration for his fortunate rival. Refusing to make any move that might detract in any way from Lindbergh's glory, he held his plane on Roosevelt Field for more than five weeks in order to greet Lindbergh upon his return to America. At last on June 29, he issued orders for the "America" to start. His object now was to demonstrate that such a flight could be made in a plane carrying passengers with enough of a pay load to make such flights practicable. The plane

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PRESIDENT COOLIDGE DECORATING BYRD AND BENNETT

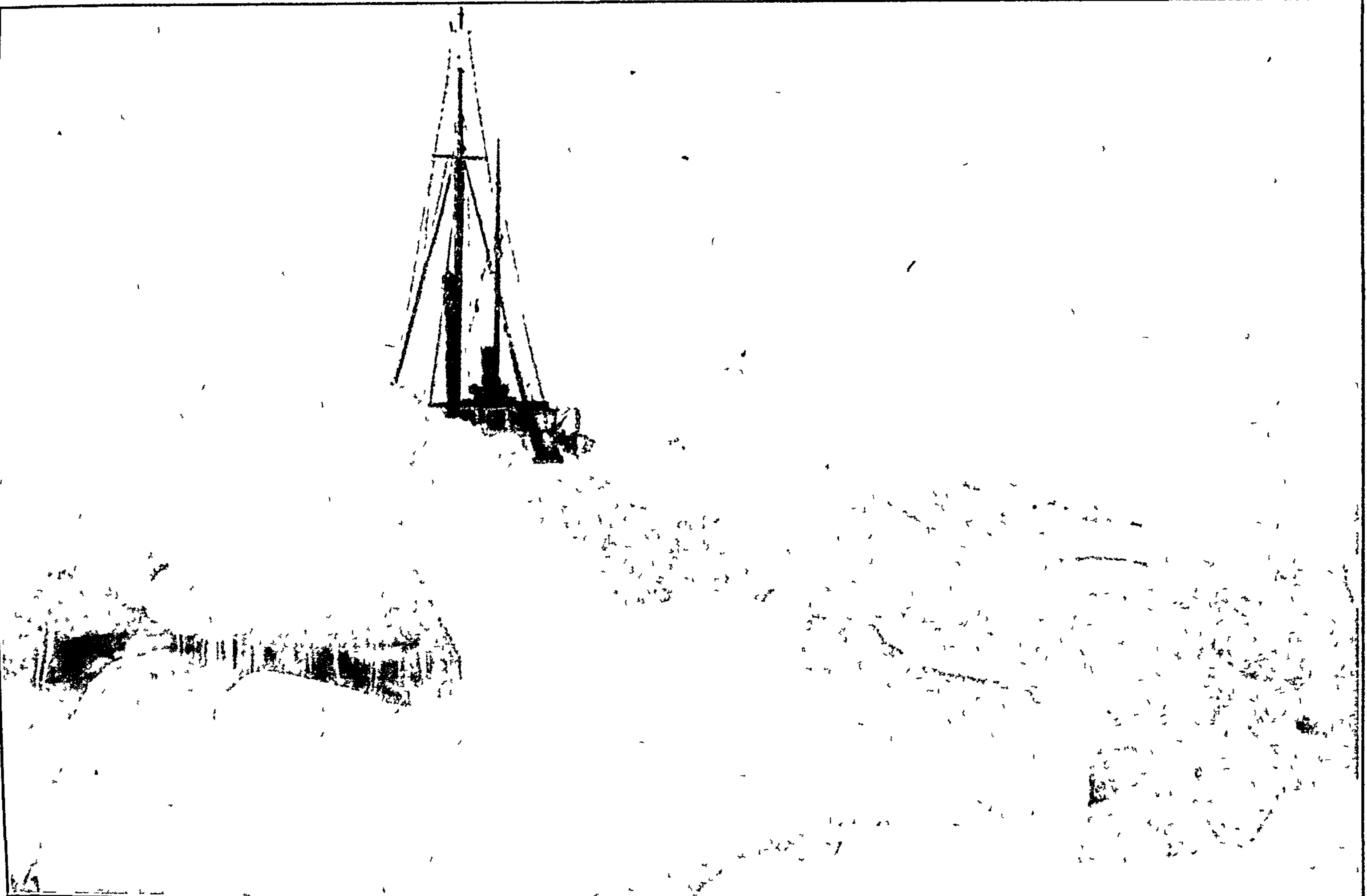
A tremendous ovation greeted the heroes on their return to America



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THE MARTYRED BENNETT BURIED WITH NATIONAL HONORS

While flying to the rescue of the German "Bremen," Bennett contracted double pneumonia and died in a hospital at Quebec, April 25, 1928. Bennett's grave at Arlington Cemetery, Washington, is within a few yards of that of Admiral Robert E. Peary.



FORTY NORWEGIAN SHIPS SUNK OR CRUSHED BY ICE

Out of ninety Norwegian government ships that went out to break ice for the sealing fleet in the Arctic, forty never returned. This official Norwegian photograph shows one of the ships just before she sank

would also carry mail, for preparatory to the first attempt Byrd had been sworn in by the Post Office Department at Washington as the first transatlantic mail pilot. His flight, after twelve years of planning, would be the first scientific expedition in transatlantic aërial navigation.

Rescue parties were still seeking the lost Coli and Nungesser, gallant Frenchmen who had sailed from France on the westward flight to America, never to be heard from again. So the plane carried in addition to a load of fifteen thousand pounds, two rubber boats for use in a forced landing at sea Aboard with Commander Byrd were Balchen, who later piloted his plane over the south pole, Acosta, as alternate pilot, and Noville, who, as radio operator, would demonstrate the value of communications from the heavens, over the sea, to the continents. Bennett who had planned the expedition with Byrd, was left behind, convalescing from the earlier disaster. Damon and Pythias were separated; no man waited with greater anxiety than the invalid, seeking hourly from the radio the latest word of the plane.

At the very outset of the journey the plane encountered the worst possible weather conditions, running into fog so thick that Byrd and his companions could not even see the front of the plane. No water or land was visible beneath them to serve as a landmark; no sun, moon, or star was visible overhead to aid in navigation. They increased their elevation until they were flying two miles above sea level, and still the fog swirled about them. For two thousand miles they flew "blind." No other plane had ever done this for even half their time. When the crossing was nearly made, they got a glimpse of the sun. By a marvelous feat of "dead reckoning" they were still on the right course.

With a thrill of triumph, they saw the coast of France and headed away for Paris. Night fell. The impenetrable fog closed in again. The flyers knew they were over Paris, but there was only dense blackness beneath them. Powerful searchlights at Le Bourget Field could not penetrate the murk of the heavy clouds. Byrd's skill as a navigator could, undoubtedly, have landed them safely, but he was unwilling to risk killing those who might be gathered below him on the landing field by dropping unseen from the blackness of the night. On the other hand, they could not stay up indefinitely, for they were running short of gasoline.

Byrd made the decision: "Back to the coast where landing can be made on the water." "At least," he thought, "we shall kill no one but ourselves."

Flying as low over the coast as they dared, they located a lighthouse, a single spot of light in the inky blackness of the rain-lashed midnight. Whether rocks lay beneath them, they did not know. Flares were dropped which ignited on reaching the water and threw out feeble rays of light over the storm-tossed waves. Finally, down they came, down until their landing gear touched the sea and was shorn away clean as with a gigantic knife. A sickening crash! Byrd felt a blow over the heart. The plane filled instantly with water. Acosta was thrown clear but Balchen and Noville were caught inside the plane. Noville crawled out through the window. Balchen disentangled himself from the wreckage.

Their first thought was of Byrd. Where was he? A voice reached them through the darkness, and they found him clinging to the wreckage, calling and swimming about the sinking plane in an effort to locate them. Temporarily deafened by the incessant roaring of the great engines for

forty-two hours, they were unable to hear the replies to their questions. Noville, though still dazed, hauled out a rubber boat and commenced blowing it up. The others held on and waited for their minds to clear.

The "America" was sinking rapidly. Saving what they could, they climbed aboard the frail rubber boat and, in the darkness, made for what they hoped was the shore. Their calculations had actually landed them on the coast, but a few rods from land. Struggling safely up the beach, they started looking for assistance. A boy on a bicycle took one looked at the ragged, bedraggled crew and pedaled madly away. At last they aroused the keepers of the lighthouse, who told them that they were at Ver-Sur-Mer. Before they slept, they went back to their sinking ship for the United States mail.

The four flyers spent the night in a peasant's cottage. The next day they were taken to Paris, where the welcome which they received was but another index to the nobility of the French character. The French people were still mourning the loss of their own gallant flyers, Coli and Nungesser, but the entire nation turned out to honor Byrd and his comrades as it had honored Lindbergh not many weeks before. The throngs in the streets were so great that it was impossible to start the motor car in which the Americans were riding. It was shoved along by the crowd. Its windows were broken; its fenders were bent and smashed. Byrd has never forgotten this wild and riotous welcome. That is why two years later he dropped the flag of France over the south pole in tribute to the French people.

Byrd's welcome upon his return to New York was more overwhelming, if possible, than that given him on his return from the north pole. Again he was the national

hero. Again blizzards of tape and confetti rained in the canyons of lower Broadway; horns blared; whistles blew; millions cheered themselves hoarse. Speeches, banquets, medals, honors—through all of it, one thought occupied the explorer's mind: the greatest and most dangerous adventure of all, the voyage to the south pole.

In an age when the United States is the wealthiest country in the world, it seems absurd, perhaps, to say that Byrd's genius in obtaining financial backing for his flights was almost as essential as his scientific and mechanical knowledge. Yet, as a matter of fact, this is true. Modern scientific exploration requires expensive equipment. The costs of exploration have mounted increasingly during the centuries. The backers of Columbus spent less than $5,000 on the expedition that discovered America, in contrast to the $200,000 which the Amundsen-Ellsworth expedition alone cost. Nobile spent $300,000 in outfitting the "Italia"; Scott on one exploration in the Antarctic spent $500,000. For the Byrd expedition to the south pole, assembled as it was with all the skill of modern science, the cost was estimated at nearly $1,000,000. Such costs as the last are by far too great, of course, to be met by a single individual or even by a single scientific organization. It follows that the raising of adequate funds is today the heaviest part of the explorer's task.

Honor is due to America's men of wealth, from Henry Grinnell, who generously financed the first American expeditions, to John D. Rockefeller, Jr., Edsel Ford, and Rodman Wanamaker, who have given without stint in the financing of the latest ones. Scientific societies, too, such as the National Geographic Society, the American Geographical Society, the American Museum of Natural History, and the Smithsonian Institution have made substantial

contributions, while the Navy Department has extended full coöperation in supplying instruments, charts, and, often, ships and personnel. But even with the most generous support, much money must still be raised by the explorer himself, who usually resorts to two methods. He persuades manufacturing firms to contribute their products, and he gambles on the income from his lectures when he returns, his picture rights, and his writings. Peary gave 168 lectures in 96 days, by which he raised enough money to pay the deficit of a past voyage and to start the fund for another expedition well on the road to completion. This "money-raising tour," he maintained, was the hardest expedition he ever conducted.

In spite of their utmost efforts, however, many explorers have failed to make the expenses of their trips. "History proves this point all too poignantly," records Admiral Byrd. "Columbus died penniless. Scott, perishing on the antarctic ice, penned a message to the English nation pleading that his family be cared for. Shackleton, dying in harness, left an estate too slight to keep his wife and child. Amundsen, Stefansson, Captain Bob Bartlett, and a dozen others who have devoted their lives to the spread of human knowledge through the medium of exploration are all poor men." On his first big flight to the north pole, Byrd himself left America with a deficit of $20,000. If he had failed to complete the flight successfully, his contracts for news stories, lectures, and pictures, made on a contingent basis, would have been practically valueless. Failure would have meant debt, if not bankruptcy, for many years to come.

Captain Bob Bartlett tells the story of Peary's discouragement just before his last voyage, upon which he reached the north pole:

"Peary was then forty-nine and a failure. He had labored hard and accomplished practically nothing. He knew more about arctic work than any other man living and he was still determined to reach the pole. . . . The public looked on him as a misguided zealot. The Peary Arctic Club tried to raise money and failed. The 'Roosevelt' was partly built when money gave out. He had given everything he had and pawned Mrs. Peary's possessions as well, when finally Morris K. Jesup and Major Thomas Hubbard each gave $50,000."

The great Amundsen describes in heartbroken words his suffering when his own brother, who had the management of his affairs, threw him into bankruptcy for a personal loan of $25,000:

"I was now penniless, and it was only by a mercy of the law that I had a shelter over my head. This, however, was the least of my sorrows. This little Norwegian nation, to which I had more than once brought a new fame by reason of my exploration had time and again been delighted to do me honor. Now that ignorance had led me into a humiliating position, the Norwegians almost to a man turned upon me with unbelievable ferocity.

"Men who had flattered me now stooped to circulating the basest scandal. The Norwegian press attacked me. They could not take from me the glory of the Northwest Passage, nor the discovery of the south pole, but the same lips that had described my career as a glory of the Nation did not scruple to repeat lies of the most transparent fabrication, in a cruel effort to besmirch my private character and tarnish my name. Some even declared that my bankruptcy was a conspiracy with my brother to defraud my creditors! More vicious minds concocted the story that the two Eskimo girls I had brought to Norway were

my illegitimate children, an invention so fantastic as to be merely amusing in the light of my known whereabouts in regions remote from their birthplace for years before and after the possible dates of their origins. The tragedy of my situation at that time words cannot express. . . . I was nearer to black despair than ever before in the fifty-four years of my life."

For his expedition to the south pole, Byrd incurred, as stated above, expenses of nearly a million dollars. Of this sum, the National Geographic Society contributed $50,000. His success in the undertaking leads to the sincere hope that any part of the total for which he was responsible upon his return to the United States will be easily liquidated. Certainly his skill as an organizer, his aërial conquest of the south pole, his scientific discoveries in Antarctica, his charting of new lands for the United States, his fight against the ice jam in the escape from Little America, his valor and achievements have justly won for him the title of the "Greatest Explorer of Modern Times."

Chapter XXIV

LAST DRIVES AT THE ARCTIC BARRIERS

WITH the discovery of the north pole by America and the discovery of the south pole by Norway the efforts of the nations, in the frigid zones, efforts which had covered hundreds of years, seemed to have come to an end. Two things, however, continued to draw men into the Arctic. Both of them had to do with the development of modern science.

First, many scientists undertook journeys into the North to discover and record for human knowledge the details of arctic phenomena. In the single-minded struggle to attain the pole, every angle of exploration had been subordinated to the one effort to push farther and farther north. In that drive explorers had been unable to give the time and effort necessary to the adequate study and cataloging of the facts about the arctic. Now scientists turned north to study the habits of the Eskimos, to examine and classify the flora and fauna of the north, and to note geological, meteorological, and geographical facts which had been neglected or overlooked in the fight for the pole.

Second, men determined to test their new inventions upon that portion of the earth which had for so many hundred years defied the older methods of attack. With airplane and radio they resolved to extend man's domination across the frozen arctic circles of the earth.

Most prominent, perhaps, as an individual, among these later explorers and students of the north is Vilhjalmur



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FOUR GREAT EXPLORERS

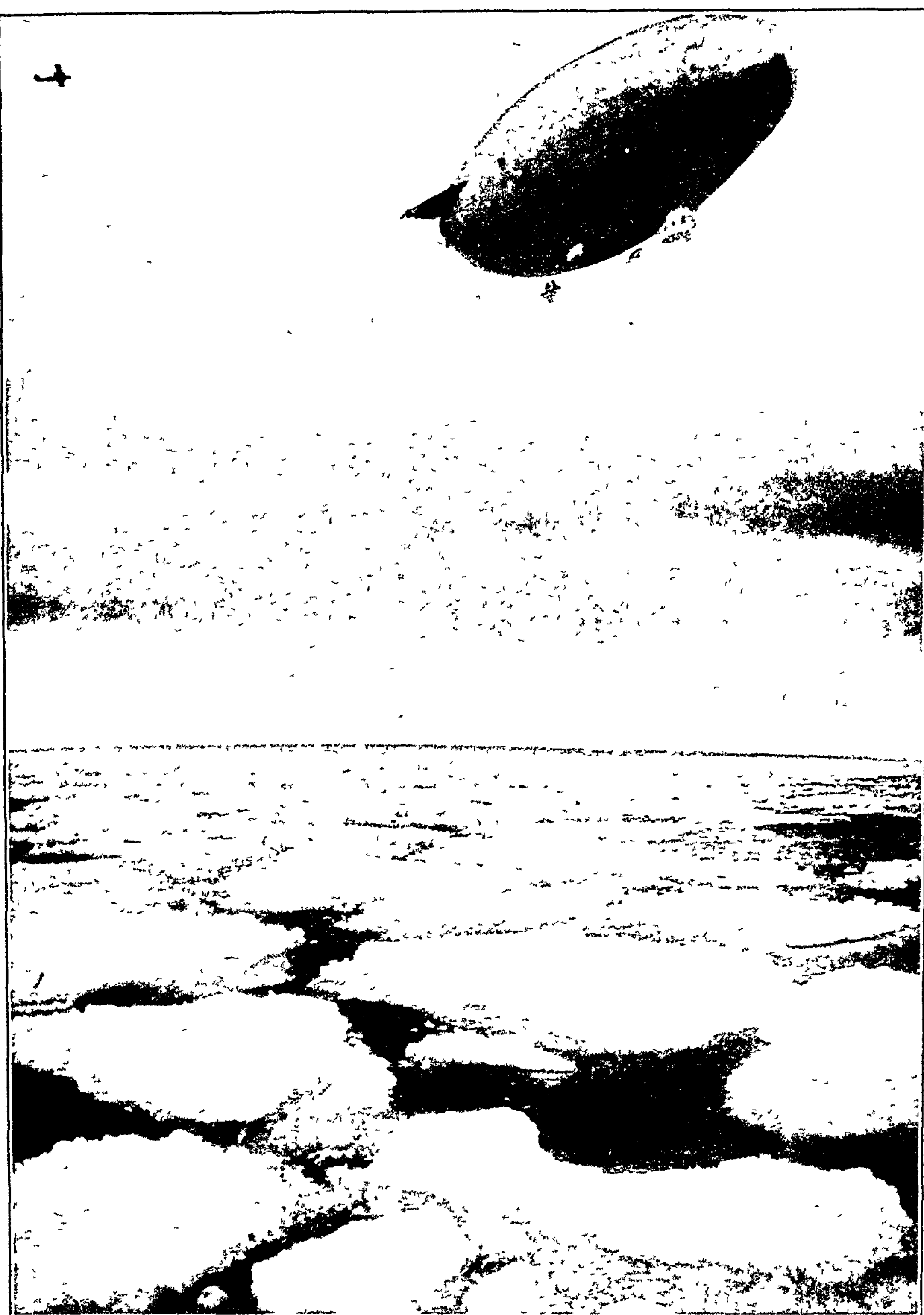
MacMillan (upper left), who has made eleven expeditions into the Arctic Stefansson (upper right), a great civilizing force in the Arctic Mawson (lower left), an Argonaut of the Antarctic Captain "Bob" Bartlett (lower right), "the greatest seafaring man who ever went into the North"



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MONUMENT OF THE GREAT EXPLORER WHO SAW BOTH POLES

Roald Amundsen gave his life in a noble attempt to rescue his bitter enemy Nobile, June, 1928. The monument in Golden Gate Park, San Francisco, is a tribute of the Norwegian citizens of the city



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THE "NORGE" ON ITS FLIGHT TO THE NORTH POLE—May 12, 1926

Amundsen-Ellsworth-Nobile three days after Byrd's flight in his airplane. The first dirigible to make the polar flight.

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AMUNDSEN DROPPED THESE FLAGS OVER THE NORTH POLE FROM THE "NORGE"



EXPEDITION COMMANDER ROALD AMUNDSEN



AMERICAN FINANCIER LINCOLN ELLSWORTH



EXPEDITION PILOT UMBERTO NOBILE

Stefansson, sturdy Scandinavian, whose generous heart has won for him among the Eskimos the title of the "Great Father." Stefansson has spent ten winters and thirteen summers above the arctic circle. He has discovered Eskimo groups not known before and lived among peoples who, until he came, had not seen a white man for more than fifty years. He has lived for months on drifting ice floes, existing exclusively by hunting and so proving his theory that animal life extends practically throughout the arctic regions; that men properly trained and experienced need not starve or freeze even if lost for months in these regions; and that these regions have great economic value, chiefly as meat-supplying countries, which may be utilized in the years to come.

His most important work has been his research and exploration in the Canadian archipelago, which he began in 1913 as commander of the Canadian Arctic Expedition and for which he was admirably fitted by earlier work in the same region. He has now covered the entire archipelago, contributing important knowledge in all branches of science. Greely, the American authority, says of Stefansson's explorations, "Geographically his surveys are estimated to have withdrawn nearly 100,000 square miles from the areas of unknown lands and seas."

Through Stefansson's efforts, too, a colony was established on Wrangel Island, but before the plans for scientific work could be carried out the Soviet Government claimed that the Scandinavian was violating Russian territorial rights and summarily ejected the entire colony, replacing it with a settlement of Siberians under the control of three Soviet officials. The men live on the land and sea game of the region, with annual visits of inspection made by a government airplane.

The most active country in this twentieth-century study and possession of the north has been the United States, where associations, colleges, museums, and individuals have coöperated in an effort to solve as effectively as possible the major problems of the North. Beginning after the World War with the organization of the Bowdoin Association for the purpose of securing funds for an expedition to explore Baffin Land, interest increased until the scientific conquest of the arctic was in full blast. Men such as Donald B. MacMillan, George Palmer Putnam, and Lawrence Gould; natural history museums such as those of New York and Chicago; and universities such as those of Yale, Harvard, Princeton, and Pennsylvania have by their efforts brought both honor and success to the United States.

It was Donald B. MacMillan who was placed in command of the Bowdoin expedition to explore Baffin Land. In a schooner specially built for the purpose, he sailed from Wiscasset, Maine, on July 16, 1921. His expedition discovered and named Bowdoin Harbor and spent a year charting the coasts and inland landmarks of the neighborhood, contributing information of great value to navigators in the waters around Baffin Land. It is interesting to note that a Canadian, J. Dewey Saper, explorer and naturalist, later won the distinction of being the first man to return alive from the crossing of Baffin Land, bringing with him upon his return to Canada in 1926 thousands of valuable specimens of land and marine life.

A second expedition under Commander MacMillan sailed from Wiscasset on June 24, 1923, with two purposes in view: general exploration, and the erection of a memorial tablet for the National Geographic Society in honor of Major General A. W. Greely and his heroic fellow sufferers

at Starvation Camp near Cape Sabine. This was the first expedition which kept in constant radio communication with civilization. Using dog sleds, the men covered a distance of more than two thousand miles from their base north of Etah, reaching within six hundred fifty miles of the pole itself, and making important geological discoveries. Valuable information was also collected in regard to the customs, habits, and beliefs of the Eskimos.

To prove or disprove the theory that the Norsemen were the first white men to land on the American continent, the Field Museum of Natural History of Chicago in 1926 engaged MacMillan to conduct an expedition to northern Labrador. Five scientists and three women accompanied him. They succeeded in collecting Eskimo legends that told of many fierce battles with these Norse settlers in the far distant past, and in finding Norse runes carved on stones more than a thousand years ago. It is an interesting enthnological theory that the Eskimo race itself goes back for 25,000 years to the very birth of the race of man, when our ancestors of the Glacial Period lived under similar arctic conditions. This theory has been developed by Knud Rasmussen, leader of the Danish Ethnographical Expedition to arctic North America in 1921, and he has gathered much evidence to sustain it. This expedition left Copenhagen on June 17, 1921, and spent three years in the collection of important data on Eskimo culture and history. Following up his interest, Rasmussen has since worked with these fascinating people, establishing for them a permanent trading station which has often preserved their lives in times of famine.

The Chicago Museum was followed by the Museum of Natural History in New York. To secure geological and botanical specimens and to collect information, an

expedition was organized by the American Museum of Natural History and placed under the able leadership of George Palmer Putnam, distinguished publisher and publicist. This expedition sailed for the coast of Greenland on the "Morrisey," a schooner owned and commanded by Captain Bob Bartlett, friend and comrade of Peary. With the expedition were Peary's son, Robert E. Peary, Jr., and David Binney Putnam, the leader's thirteen-year-old son. Although David was the youngest white explorer who had ever penetrated the fastnesses of the Far North, he was a real member of the expedition, taking his share of all the work and of all the hardships. On his return to the United States he wrote the story of the trip and illustrated it with photographs taken by himself. His book has done a great deal to promote the interest of thousands of young Americans in the work of exploration.

The expedition as a whole was very successful in securing valuable material for the museum and in navigating dangerous waters in which the "Morrisey" lost her keel and narrowly escaped shipwreck. It was on this trip, too, that Putnam examined the Eskimos in an attempt to learn the details of the fate of Ross G. Marvin, who was drowned, according to the reports of the Eskimos who accompanied him, on Peary's trip to the north pole. He found an Eskimo who confessed to having murdered Marvin, shot him, and thrown his body into the water, because he feared that Marvin would desert him, take the supplies, and leave him to die. After his confession this Eskimo became a Christian.

On a second expedition, this time to visit Baffin Land, Putnam sailed again in the "Morrisey" with Bartlett on June 13, 1927. With him, in charge of the geological and geographical work, was Professor Lawrence Gould of the

University of Michigan, later a member of the Byrd expedition to Antarctica. Five thousand miles of a hitherto unknown region were explored on the trip.

In the years 1926 and 1927 the universities of the country began to take an active part in the investigations. In those years the alumni of Harvard, Yale, Princeton, and the University of Pennsylvania, under the leadership of Lieutenant Leigh Wade, Chief Pilot, established a base at Wainwright, Alaska, from which they surveyed and took possession of territory in the name of the United States. To find "the birthplace of northern storms," an expedition was organized by the University of Michigan in 1927 under the direction of Professor W. H. Hobbs. Three men established themselves as hermits just below the arctic circle and reported storms by radio to Atlantic shipping forty-eight hours before the storms reached ships engaged in regular trade. For their own amusement, these men also followed World Series games and the Tunney-Dempsey fight by radio.

While these explorers sought to unlock the secrets of the arctic with traditional methods, other adventurers undertook the subjugation of northern wastes by the use of the airship. As far back as 1910 Germany had sent a commission to the arctic to report on the feasibility of carrying on explorations there with airships of the Zeppelin type. The commission had reported that in its opinion such an expedition would be practical, but the German Government did nothing further about the matter. The first actual flights in the arctic were made in 1914 by Russians who were looking for the lost explorer Sedov. Seeking him, Lieutenant Nagurski took a Farnum hydroplane to Cross Bay, Novaya Zemlya, and made successful flights for four hundred and fifty miles along the coast and out over the Barents Sea.

The World War brought to a close this early aërial attack on the arctic, but soon after the end of the war the value of a far northern radio base and airplane station became apparent. A movement was set on foot by Canadians who organized the Canadian Arctic Expedition under the command of Harold G. Noice for the purpose of taking possession of Wrangel Island in the name of Canada and Great Britain. Five persons, under Allen Crawford, were left at the station in 1921 to establish residence. When Commander Noice returned to the settlement in February, 1923, however, he found that one man had died of natural causes, and that Crawford and two others had set off for Siberia. The latter were never heard of again. The only person found was the Eskimo cook, Ada Blackjack.

Soon afterwards Amundsen, seeking new laurels for his beloved Norway, obtained the financial support of Lincoln Ellsworth, an American, and determined to fly over the north pole. Securing two planes of the Dormier Wal hydroplane type, he and Ellsworth set off from their base at Kings Bay, Spitzbergen, on May 21, 1925. Amundsen was in charge of one plane and Ellsworth of the other. Shortly after starting, both men met fog and storms, and both were forced down. Although the grounded planes were within four miles of each other, each explorer was without knowledge of what had happened to his comrade.

For weeks the world had no news of them. Rescue expeditions were already under way, when the whole party, in a single plane, returned to the base, hungry and emaciated but undismayed. Ellsworth's men, exploring the region into which they had fallen, had discovered Amundsen and his associates four miles away and joined them. By their combined efforts the six men from the two planes had

succeeded in hewing a runway out of the ice of sufficient length to allow the undamaged ship to rise into the air twenty-eight days after it had been forced down.

In the same year, Grettir Algarssen, attempting to forestall Amundsen and Ellsworth in a flight over the north pole in a dirigible, had been unsuccessful. Donald B. MacMillan and Richard Byrd, making the first aërial survey of Ellesmere Island and northern Greenland, were impressed but not intimidated by the bad flying conditions and the worse terrain. It was on these flights that Byrd reached his determination to fly over the pole.

Amundsen and Ellsworth, however, immediately began preparations for another attempt to fly across the pole. This time they planned to fly in a dirigible, the "Norge," which they purchased from the Italian Government. General Umberto Nobile, who had designed the ship, was engaged to pilot it during the voyage. They planned to fly across the entire arctic from Kings Bay, Spitzbergen, to Nome, Alaska, passing directly over the north pole en route. Nine countries furnished men, aircraft, motors, navigation instruments, and funds for this attempt. These, in order of their contribution to the expedition, were the United States, Norway, Italy, England, Holland, France, Germany, Russia, and Sweden.

While Amundsen and Ellsworth were putting the finishing touches on their elaborate preparations in Spitzbergen, suddenly they were beaten. Three days before Amundsen's ship started on her flight, Byrd and Bennett shot to the north pole in the airplane "Josephine Ford."

Amundsen, defeated in his ambition to make the first flight to the pole, nevertheless continued his voyage. His magnificent airship left Kings Bay on its dangerous journey on May 11, 1926. She reached the north pole in four and

a half hours, and after dropping American, Norwegian, and Italian flags, continued on her flight across the top of the world. Meeting storms on the Alaskan coast, she was forced down at Teller, some miles from Nome, her original destination. She had been eleven hours in the air. Amundsen's old friend and comrade, Captain Riiser-Larsen, serving as navigating officer, several times averted the wreck of the ship when it got out of the control of its pilot.

Hubert Wilkins now conceived the idea of flying across the top of the world, not as Amundsen had done, in a dirigible, but in a heavier-than-air machine. He organized the Wilkins-Detroit expedition and fitted out three planes for the flight. One plane was destroyed by fire at the Ford Airport at Dearborn, Michigan, but with the other two planes, he sailed from Seattle on February 12, 1926. At Fairbanks, Alaska, the summer was spent in assembling the two planes and in transporting supplies to a base at Point Barrow from which it was planned to begin the 2,100-mile flight to Spitzbergen.

Trouble dogged the expedition from the outset. On March 11, Palmer Hutchinson, a journalist, was killed by a whirling propeller. The first attempt at the long flight ended in the wreck of a machine at the take-off on March 18, 1927. The second plane, piloted by Carl Ben Eielson, made a successful flight of five hundred miles in five and a half hours. Landing on an ice pack, the men in the plane made soundings and found that the sea at that point was 5,440 meters deep, the deepest so far recorded in the Arctic Sea. On the attempt to return, however, storms arose which forced another landing on the ice. Helpless, the men drifted on the ice for two hundred miles. Facing the same hardships which explorers had suffered before the advent of the airplane, the courageous flyers crawled on their

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SPENDS HIS LIFE WITH ARCTIC ESKIMOS—KNUD RASMUSSEN

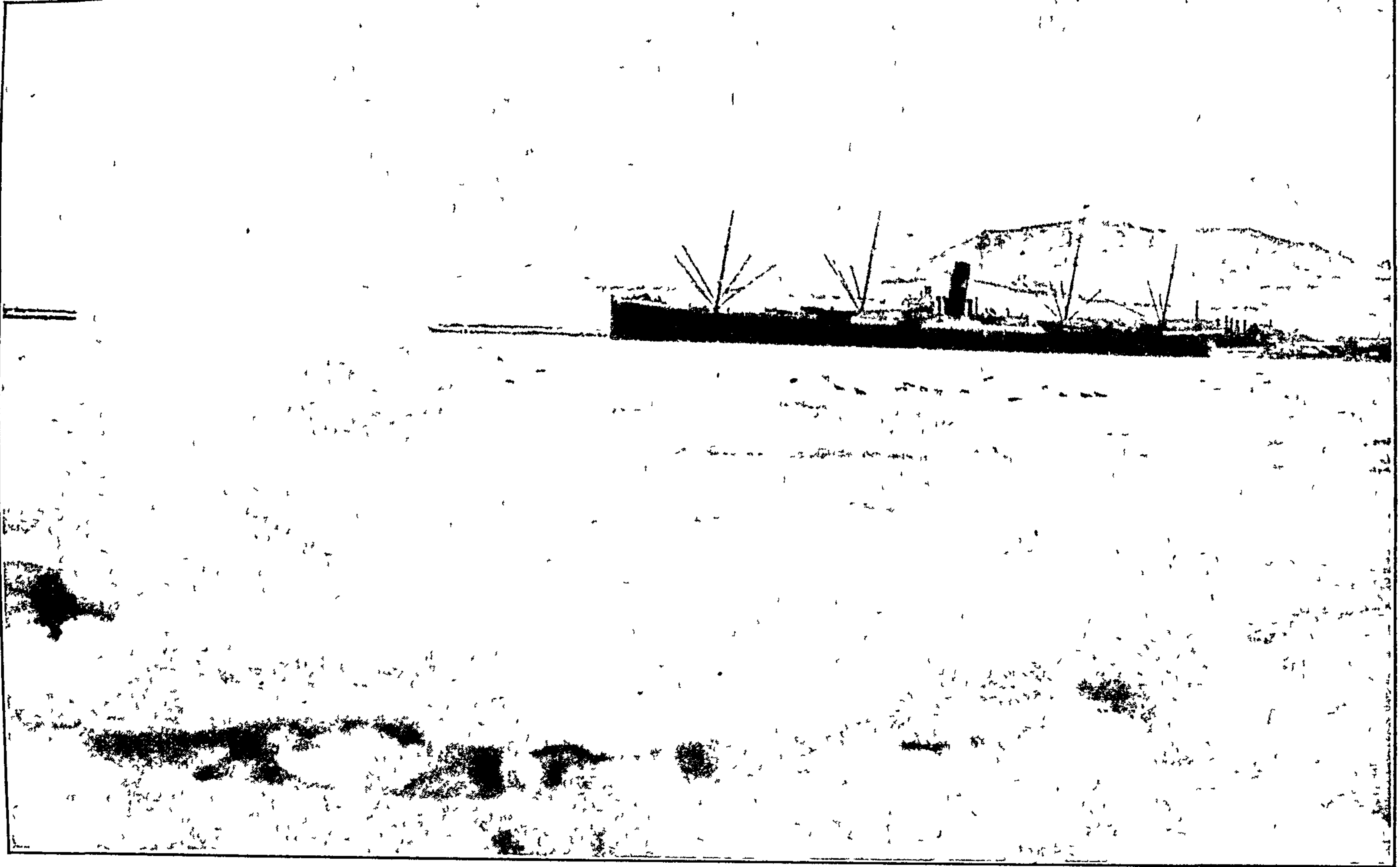
The man loved in the Far North. He has lived among the Eskimo as their friend. The photograph shows him with a group of Eskimo girls



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FOURTEEN SAVAGE NORTHERN "HUSKIES"

Draft horses of all expeditions. They eat one another when food fails



© *International*

SIR HUBERT WILKINS ICE-LOCKED IN THE ANTARCTIC AT DECEPTION HARBOR

From this spot Wilkins made the first airplane flights in the South Frigid Zone He discovered that the so-called Graham Land was not a peninsula, but a chain of small islands



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FIRST ACROSS THE TOP OF THE WORLD—April 15, 1928

Sir Hubert Wilkins (right) and Carl Ben Eielson (left) after their historic flight from Alaska to Spitzbergen Eielson lost his life off Alaska in a rescue flight in 1929

© *International Newsreel*

GIANT DIRIGIBLE "ITALIA" LOST AFTER FLIGHT OVER NORTH POLE—May 24, 1928

The "Italia" fell 1,500 feet on an ice pack The cabin was torn away, Nobile injured, Pommela killed, Ceccioni's leg broken, and the remainder of expedition left to wander the desolate Arctic

© *Pacific & Atlantic*

NOBILE'S FAITHFUL DOG RESCUED WITH HIS MASTER

This dog was found on the ice with the injured Nobile.

hands and knees over the swaying, buckling, rafted belts of pack ice for most of the distance of eighty miles, slept at night in snow houses which they constructed with great difficulty, and reached their base completely exhausted, on March 29, 1927.

Undiscouraged, Wilkins returned again to the north the next year. This time, with Carl Ben Eielson as pilot, he was successful in making the flight from Point Barrow, Alaska, to Green Harbor, Spitzbergen, in a Lockheed Vega monoplane. Taking off from Point Barrow on April 15, 1928, they were forced to land on Dead Man's Island, where they sat storm-bound for five days. When the storm subsided, they dug themselves out, rose into the air, and made port in Green Harbor. The distance, 2,200 miles, was covered in a flying time of twenty hours and twenty minutes.

Less than a year later Eielson was to go to his death flying in the North. On November 9, 1929, he answered the call of the starving crew of the lost "Nanuk," a fur-trading ship frozen in the ice. In his own plane he set off for the rescue, over the blue-shadowed ice into the teeth of a gathering storm. He was never seen alive again. A rescue party, three months later, located his broken plane, which had crashed in the storm, and brought back the remains of the heroic adventurer for burial.

General Nobile, with the help of the Italian Royal Geographical Society and the city of Milan, organized another expedition in 1928 to fly over the north pole in a new dirigible, the "Italia." Leaving Italy with the approval of the Government and the blessing of the Church, they reached the north pole on the 24th of May at 12.30 A. M. Soon after reaching the pole, the dirigible suddenly descended 1,500 feet. The cabin gondola was wrecked,

throwing ten men and the mascot dog, Titina, upon the ice. The ship itself, with seven men aboard, soared up and drifted away, never to be seen again. A column of smoke observed in the far distance soon after the wreck gave support to the theory that she had taken fire and burned, with the destruction of all on board.

One of the ten men thrown from the ship was killed outright. Two others, General Nobile himself and Motor Chief Cecioni, suffered broken legs. By good fortune many valuable supplies, including a radio apparatus, were thrown out with them. The radio was immediately set up, and the unfortunate men began sending out calls for help. Their messages were picked up first in Russia on May 26th and broadcast to the world. Norway, Italy, Sweden, and Russia instantly prepared rescue expeditions. Meantime the men, stranded on the ice, struggled desperately to reach some civilized outpost. Dr. Malmgren, the Swedish scientist, and Captains Mariano and Zappi set out on May 30th in an attempt to reach North Cape and bring assistance to their comrades.

The "Citta di Milano," base ship of the "Italia" expedition, reached Kings Bay and at once established radio communications. An Italian plane, commanded by Major Maddalena, left Rome on June 8th. In the meantime, a Swedish expedition was speeding on its way with several planes. Lieutenant Lundborg, having dreamed that he saw the position in which the survivors were lost and that he rescued them, set out to make his dream come true. At midnight, June 23rd, he succeeded in landing near the pitiful little tent which had been erected by the survivors. He brought back General Nobile, and the dog Titina, and promised to return at once. He did return, but his plane crashed on landing and he found himself

marooned for a period of nearly two weeks, with those he had come to rescue, during which time, however, planes flew over and dropped supplies.

Since June 22nd the Russian ice-breaker "Krassin" had been forcing her way northward. A flying party sent out from her was forced down in a vain attempt to bring the unfortunate men away, but on July 12 the "Krassin" rescued all survivors, including her own men and two of the men who had started for North Cape. International controversy and recriminations followed the rescue, for the Swedish scientist, Malmgren, had been left by his two Italian comrades to die alone.

The hand of tragedy now falls heavily upon the scene. Let every man of every race and nation uncover his head. There is no epic in the annals of mankind that excels the heroic end of the great Amundsen. Nobile was his bitter enemy; the Italian had maligned him and claimed his glory. Yet, when Nobile was lost in the arctic, it was Amundsen, with true viking nobility of spirit, who gave his life to go to the rescue of his arch enemy.

The silent Amundsen, true sportsman to the last, started out at the head of a Norwegian expedition in a French seaplane from Tromsö, Norway, on June 20, 1928, to save the lost Nobile. The silence of the arctic closed in about him. Not a word has since been heard of him—only the wreckage from the plane has been found along the coast of Greenland.

"Amundsen, dead or alive!" This is the oath of the explorers who have pledged themselves to bring him back to his beloved Norway. Nine ships and twenty flyers—four Norwegian, three French, and two Russian—have searched the arctic for him. Thus, for two years the shroud of mystery has lain over him. Will the gallant viking ever

be found? First to sail through the Northwest Passage, first to fly in an airship over the top of the world, first to reach the south pole—shall the great soul of Amundsen haunt forever the arctic silence which he loved?

CHAPTER XXV

RETURN OF THE GLADIATORS FROM THE ANTARCTIC ARENA

THE HOME-COMING of great explorers from their conquests is the signal of triumphant ovations today as it has been for thousands of years. From the crusades of Richard Cœur de Lion in the Holy Lands to the crusades of Richard Evelyn Byrd at the ends of the earth, the multitudes have acclaimed them like victors coming home from the great wars of conquest.

In 1930 four gallant rivals in the war for the possession of the continent of Antarctica—modern gladiators of four great countries—withdrew with high honors from the field of action at the bottom of the world, Admiral Byrd with his "new lands for America"; Sir Hubert Wilkins, the English "Knight of Polar Conquests," with the results of his fourth great expedition; Sir Douglas Mawson, the distinguished Australian, with a lifetime given to adding new domains to the British Empire; Riiser-Larsen with his new claims for Norway, the nation that discovered the south pole.

Sir Hubert Wilkins was the first to return to civilization, arriving in New York, in March, 1930, as commander of the Hearst Antarctic Expedition. He first entered the Antarctic with Shackleton on the British Imperial Antarctic Expedition of 1920–21.

To him belongs the honor of being the first to explore the Antarctic in an airplane (1928). From a base on Deception Island, with Carl Ben Eielson as pilot, he made

a successful exploration of six hundred miles in his historic plane. On this flight he discovered that what was hitherto thought to be a long, narrow peninsular projecting from *the main body of the continent was in reality an archipelago.* The main body of the mainland which he explored he named Hearst Land, in honor of William Randolph Hearst, the noted American political economist and publicist.

Sir Hubert was received in America as "one of the world's greatest explorers," beloved by the American people for his daring and adventurous spirit. With him he brought the famous airplane which first flew over Antarctica; the same plane in which he flew across the top of the world from Alaska to Spitzbergen, with Ben Eielson as pilot.

"This veteran plane," said Wilkins, "has carried me over 3,000 miles of this earth's surface never before seen by man." With it during 1929, Sir Hubert discovered two new islands and located some 300 miles of antarctic coast line, flying over the mountainous seas and through the blinding blizzards. This expedition discovered that Charcot Land is not, as was hitherto believed, a part of the continent but a large island near the coast.

"The greatest importance of the polar regions to the peoples of the world," declared Sir Hubert, "is their effect upon our climate. Permanent weather stations at both ends of the earth will give us scientific data on which to make accurate computations These regions through modern science can be made habitable and sources of wealth. There need be no more danger on the continent of Antarctica than on the streets of New York. I have returned to America to attempt to cross under the Arctic Sea over the top of the world in a submarine and to explore the depths of the polar sea."

Sir Douglas Mawson, now on the British Australia-New Zealand expedition, takes his place in the glorious annals of polar history as a gallant explorer who has brought fame and glory to his native land of Australia. To him belongs the honor of sending the first radio message out from the cold southern fastnesses of the antarctic world in February, 1913. His story has been related in these pages as the discoverer of the south magnetic pole. During 1930, in the famous ship "Discovery" in which Scott sailed on his great exploration, Sir Douglas charted the ice-bound coasts of the Australian Quadrant.

Captain Riiser-Larsen, famous Norwegian explorer, after ten years at work in the Antarctic reached Cape Town, South Africa, March 21, 1930, in his ship, the "Norvegia," on his homeward voyage, after discovering and taking possession for Norway of new regions between Enderby Land and Coates Land. His patient work in charting and sounding these wild waters and hostile coasts for the benefit of the whaling ships has given him rank under Nansen as Norway's greatest explorer. It was he who, under Amundsen, made the Northwest Passage in the "Gjöa"; and later flew in the "Norge" with Amundsen and Ellsworth on its famous flight over the north pole.

Admiral Byrd's escape from the ice-locked continent of Antarctica, which threatened to imprison him for another year, is in itself a thrilling tale of adventure.

The daring Captain Melville, of the relief ship, "City of New York," battling with storm, emerged from the polar ice pack into clear water—far west of his course—February 16, 1930, in the lee of the Ross Barrier. Sun and stars having been obscured for nearly two weeks, no observations had been possible, and the ship was far to the westward of the waiting men on Little America. Sailing in

the lee of the gigantic barrier the storm-tossed mariners found some protection from the wildest fury of the gale. The crew set to work to chop the ice from her bows and rigging with axes; they lightened the bark by removing some twenty tons of this frozen spume and spray.

Captain Melville, who was keeping up continuous communication with Admiral Byrd on the radio, warned him that new ice was rapidly forming, and that if low temperatures and calm weather should succeed the gale it might be impossible for the ship to make her way through the narrow passage for the return voyage. All united in hoping for a rising thermometer and a heavy wind that would keep the waters in motion and so prevent them from freezing.

Their hopes were answered by a blizzard. The howling winds beat upon the little vessel at the speed of a hundred miles an hour and limited her progress to about twenty-five miles a day. Byrd continued to transfer everything to the tents upon the edge of the ice. He set about dismantling his radio, sending out his last message on February 18 to Adolph S. Ochs, publisher of the *New York Times*, who had given the station to the expedition.

As the day wore on, word was received that Captain Melville had sighted West Cape—he was only forty miles away. Records of scientific value were all carefully packed, the moving-picture films being the most troublesome and particular operation of all. These were soldered in their containers, each wrapped and sealed in tin, for they must again be transported through the trying tropic heat and dampness before reaching their final destination.

The "City of New York" touched the Barrier and anchored February 18, 1930, after a voyage of forty-four days, nearly double the time which would have been taken

in clear weather. Hardly had she ceased to move when goods began to be tumbled over the side. All night the loading went on. By morning it was practically completed At breakfast the men were all on board and the mail—barrels of it—was distributed.

After saluting it for the last time Admiral Byrd and Captain McKinley hauled down the flag waving over Little America. Byrd gave one long farewell glance to his two planes resting on the hill overlooking the camp—it was impossible to bring them back. He stepped aboard, and the ship at once began its return journey of two thousand miles to Dunedin, New Zealand—just thirteen months and twenty-five days after their arrival. Forty-one happy men—sixty-five including the crew—were on their way back to civilization after one of the most successful polar expeditions in the of history of the world.. Even the dogs were aboard, more than a hundred of them; not one was left behind.

Far out at sea ten days later the "City of New York" hauled alongside the whaling ship "Kosmos," which took aboard men and dogs, thus relieving the crowded condition of the flagship. Later they tied up alongside the "Eleanor Bolling," to which more men were transferred. This ship in turn met the "C. A. Larsen," which had finished her whaling work, and put some of the men aboard her. Byrd's ships headed for New Zealand. On March 10, 1930 Admiral Byrd and his men sailed into the harbor of Dunedin after being away one year and fourteen weeks. Coming up the harbor, the men looked at the trees on the shore with tears in their eyes.

Half the population of Dunedin lined the shores to welcome the boys with the warm hospitality for which they are noted among all explorers of far southern waters.

As Byrd stepped ashore the band broke out with "Hail! the Conquering Hero Comes." The triumphant notes were half drowned by the cheers of the people.

A few hours later the "Eleanor Bolling" came into port and tied up at the wharf alongside the flagship. The men from the "C. A. Larson" had landed earlier and were on hand to welcome their comrades. The comrades were now all together once more in a happy reunion of the men who had challenged death.

The town hall, famous for the visits of Amundsen, Scott, Shackleton, and Mawson, was gaily decorated with flags and banners. Here in the evening a grand public reception was given to the explorers. The plaudits of the nations reached Byrd by radio. He spoke to the world over an international hook-up between Dunedin and Schenectady, New York. His voice was eagerly awaited by millions of people all over the world. His words were addressed directly to his friend and benefactor, Mr. Adolph Ochs. A curious phenomenon of time was revealed during the two-way conversation. Byrd was speaking in Dunedin, where it was 12.30 Wednesday morning in the autumn; while for Mr. Ochs in New York it was 7.30 on Tuesday morning in the spring. London, Paris, Berlin, Vienna, Honolulu reported good radio reception of this historic event, as did also all the American cities.

The "City of New York" sailed out of Dunedin bound for home, her first port being Tahiti. Throngs crowded the wharfs to bid the men good-by. Horns honked, and in the harbor every whistle was blowing. Flags were flying in a riot of color, and the men left with the air full of the din of the people's affectionate farewell. Two of the crew married while ashore and temporarily bade farewell to their brides. The vessel—stanch old sealer—was brave

in a new coat of gray paint which covered the honorable scars made by the formidable ice pack through which she had just battered her way twice over.

Admiral Byrd did not sail with his comrades, but remained in New Zealand, leaving in time to arrive on American soil in Panama, to join his two ships, the "City of New York" and the "Eleanor Bolling." The united fleet now sailed on its homeward voyage to be greeted with tumultuous ovation by the whole American nation.

With the first contact with civilization the news of the Byrd expedition and its epoch-making accomplishments was flashed around the world. In public speeches and interviews the Admiral related his adventures. He now belongs to the world.

The achievement of Admiral Byrd brings world supremacy to America. His expedition discovered and surveyed more new territory than any other exploring party on record. Conservatively estimated he has flown over 150,000 square miles of new lands, much of which he has photographed with the surveying camera described in an earlier chapter. His own latest statement brings the amount of territory seen to approximately 280,000 square miles.

His discovery of mountain ranges has in many cases placed on the map of the world for all time the names of great Americans whom he wished to honor.

In the realm of geology, Dr. Lawrence Gould distinguished himself by conducting one of the longest sledge journeys ever made for scientific purposes, bringing back specimens of the granite and associated rocks of the Rockefeller Mountains and making extended studies of the rocks, glaciers, and ice formations. By his work he has made forever untenable the theory that the mountains of

Antarctica are continuations of the great Andes range of South America, a theory that had hitherto been held by most geographers.

Over a period of nine months important continuous records of magnetic conditions were made, and the characteristic types of magnetic auroras determined with their movement, color, frequency, direction, and intensity.

More than a million words of radio messages were sent from the radio base in Little America. Work of the utmost importance was completed in the study of short wave lengths, static conditions, and electrical force in this region. Signals were exchanged with the world's most northern radio station, RPX, a Russian station in Franz Josef Land.

Important meteorological observations were recorded, soundings made to determine ocean currents, and kites and pilot balloons used in studying air movements, wind velocities, and the like, at different altitudes. From the conditions of the upper air strata it was found that the weather could be predicted with reasonable accuracy for the immediate future. Unbroken records of barometric pressures have been brought back for future study.

Four hundred miles of coast line were continuously mapped by the new aërial surveying cameras, making a chart which will be of the greatest value and use to all future explorers. Natural history studies of the life habits of whales, seals, and penguins have been made and preserved for future expansion. These give an indication of the immense scientific value of the Byrd expedition aside from the glorious achievement of having flown over the south pole for the first time in history.

Who owns the vast continent of Antarctica today? What countries claim possession? More than half of this

great new continent of 4,500,000 square miles remains as yet unexplored—an area of 2,250,000 square miles! Only about one-third of the coast line has as yet been charted, only a few of the great mountains have been climbed. Little is known of the nature of the great glaciers or of the polar plateau, the highest in the world, where the ice reaches sometimes to the depth of 5,000 feet. Coal and fossil vegetation have been found, leading to the theory that this was once a warmer region, but as yet no evidence of former animal life has been discovered. This is the work of future exploration.

Great Britain lays specific claim to large portions of the Antarctic Continent, some of which was discovered by Britishers and some by other explorers. She claims what is called the Falkland Islands Dependency (which includes Wilkes and Palmer Lands) and also the Ross Dependency, the region over which Shackleton and Scott did magnificent work. Her claims include the best of the whaling territory, and she compels the Norwegian, Argentine, and all other whalers to take out British licenses and abide by British regulations and laws in these regions.

The Republic of France lays definite claim to the territory found by D'Urville and called by him Adélie Land. This claim has never been disputed by Great Britain. Norway is seeking new whaling grounds which she intends to claim and administer to the advantage of her fine whaling fleet. No other nation makes official claim to any territory on the Antarctic Continent.

The United States Government on the basis of the British claims could declare its rights in the discoveries of Palmer and Wilkes, as well as of Admiral Byrd, for a great part of the continent of Antarctica. It has been the policy of this country, however, to conduct scientific explorations

without the intent of adding new territory under our flag. The American policy was stated by the Honorable Charles Evans Hughes, as Secretary of State, in 1924: "It is the opinion of the Department of State that the discovery of lands unknown to civilization, even when coupled with the formal taking of possession, does not support a valid claim of sovereignty unless the discovery is followed by an actual settlement of the discovered country."

This valorous American principle is maintained as a basis of agreement among all other nations. The rejection of this policy by other governments automatically requires the United States to demand its just claims under any plan of partition. This is the fair and equitable position taken by the American people, a straightforward proof of their high sense of justice.

Thus the thousand-year fight for the ends of the earth finds the trails of the explorers leading into the council chambers of the League of Nations, while the great continent of Antarctica and the vast regions of the Arctic wait in their solitude for the genius of man to arouse them from their age-long slumbers and create new sources of wealth through the miracles of modern science.

THE FIGHT FOR THE TOP OF THE WORLD

The first complete chart ever compiled by historians It is taken from the records of the Royal Geographical Society, American Geographical Society, National Geographic Society, United States Government, Smithsonian Institution, Library of Congress, American Museum of Natural History, and the Explorer's Club.

Year	Explorer	Nation	Goal Parallel 90
325 B C.	Pytheas	Greece	70
825 A D.	Irish Monks	Ireland	61
870	Othere	Norway	67
982	Eric the Red	Norway	73
1497-98	John and Sebastian Cabot	England	62:30
1500	Fernandez	Portugal	61
1553	Willoughby-Chancelor	England	72
1556	Stephen Burrough	England	71
1576-78	Sir Martin Frobisher	England	62
1580	Pet-Jackman	England	72
1584	Brunel	Holland	71:40
1585-87	John Davis	England	73
1596	Barentz-Nay-Tetgales	Holland	79:42
1596-97	Heemskerck-Rijp	Holland	76
1606	Knight	England	69
1607	Henry Hudson	England	81:30
1610-14	Poole-Edge-Joseph	England	77
1612	Sir Thomas Button	England	65
1616	Bylot-Baffin	England	78
1617	Edge	England	76
1619	Jens Munk	Denmark	60
1631	"Northwest" Fox	England	66:47
1644-48	Stadukhin-Alexeief-Dezhneff	Russia	65
1664	Vlamingh	Holland	75
1671	Frederick Martens	Germany	77
1676-77	Wood	England	76:34
1707	Cornelis Giles	Holland	80
1710	Permahof	Russia	73:10
1719	Knight-Barlow-Vaughn	England	64
1721	Hans Egede	Denmark	62
1728	Vitus Bering	Russia	68
1734	Paulof-Mlyagin-Owzin-Minin	Russia	75:20
1740	Sterlegoff-Chelyuskin	Russia	77:18

Year	Explorer	Nation	Goal Parallel 90
1741	Middleton	England	61
1743	T. Chelyuskin	Russia	77:43
1746	Moore-Smith	England	67
1770	Leontev	Russia	72:38
1770	Liakhoff	Russia	76
1773	J. C. Phipps	England	80.48
1776-77	Pickersgill-Young	England	75
1778	James Cook	England	70:41
1805-10	Hedenstrom-Samnikof	Russia	76:50
1806	Scoresby, the Elder	England	81:12
1815-18	Kotzebue	Russia	65
1818	Buchan-Franklin	England	80:37
1818	John Ross	England	76·54
1819-22	Franklin	England	73:41
1819-20	W. E. Parry	England	74:47
1820	Wrangel-P. F. Anjou	Russia	76:33
1821-24	Lutke	Russia	76
1822	Scoresby, the Younger	England	74:20
1823	D. Clavering	England	74:50
1824-25	Parry	England	76:19
1824	G. F. Lyons	England	65:20
1825	F. W. Beechey	England	71:23
1827	Kellett	England	71:18
1827	Parry	England	82:45
1829	John Ross-James C. Ross	England	70
1829	W. A. Graah	Denmark	65:47
1833-34	George Back	England	67:11
1837-38	Dease-Simpson	England	69
1845	Sir John Franklin	England	73:41
1848-49	James C. Ross-McClure-McClintock	England	60.48
1850	Collinson-McClure	England	75
1850	De Haven-Grinnell	U. S. A.	75:25
1851	Kellett	England	63
1850-51	Austin-Osborn-Ommanney	England	69
1851	Penny-Austin	England	74
1851	W. Kennedy	England	70
1852	Sir E. A. Inglefield	England	78:30
1852-54	Sir E. Belcher	England	75
1853	Kane-Grinnell (Morton)	U. S. A.	82:27
1853-54	McClintock-Osborn-Richards	England	77:45
1854	Pullen	England	65
1855	John Rogers	England	72:10
1857	John Rae	England	72
1857	Leopold McClintock	England	72
1858-62	Torell-Nordenskjöld	Sweden	80

Year	Explorer	Nation	Goal Parallel 90
1860	I. I. Hayes	U. S. A.	81·35
1864-69	Charles Francis Hall	U. S. A.	82·11
1867	Palliser	England-Norway	74:40
1868	Nordenskjold	Sweden	81:42
1869-70	Koldewey-Hegemann	Germany	81:05
1871-73	Charles F. Hall	U. S. A.	82:11
1872	Weyprecht-Payer	Austria	79:54
1874	Wiggins	England	79
1875-76	Allen Young	England	73:45
1875-77	Nares-Markham	England	83:20
1879	De Long	U. S. A.	77:43
1880	Leigh Smith	England	80
1881-84	Lockwood-Greely	U. S. A.	83·30
1885-86	Bunge-Toll	Russia	77.09
1888	Fridjhof Nansen (land)	Norway	64:12
1893-95	Robert E. Peary	U. S. A.	81.37
1893-96	Fridjhof Nansen	Norway	86:05
1895-97	Harmsworth-Jackson	England	81:19
1897	Andrée (balloon) Expedition	Sweden	83:25
1897	Robert E. Peary	U. S. A.	80
1897	Sir Martin Conway	England	79:16
1898	Wellman	U. S. A.	81:26
1899	Dr. A. G. Nathorst	Sweden	74:35
1898-1900	Otto Sverdrup	Norway	84
1898-1900	G. D. Amdrup	Denmark	70:15
1900	Duc d'Abruzzi	Italy	86:34
1901	Baldwin (1st Ziegler)	U. S. A.	83
1902	Robert E. Peary	U. S. A.	84:17
1902	Baron E. von Toll	Russia	78:32
1902-03	Brusillof-Kolchack	Russia	78:45
1902	Otto Sverdrup	Norway	81:38
1903-05	Amundsen	Norway	80
1903-05	Fiala (2d Ziegler)	U. S. A.	82.04
1905-06	Robert E. Peary	U. S. A.	87:06
1906	L. Mylius-Erichsen	Anglo-Denmark	83·05
1906	Berthelsen	Denmark	83.29
1906-07	Bernier	Canada	79
1906-08	Einar Mikkelsen	Denmark	72
1907	Koch	Denmark	83:20
1908-12	Stefansson-Anderson	Iceland-Canada	70
1909	Dr. F. A. Cook	U. S. A. (est.)	87
1909	ROBERT E. PEARY	U. S. A.	90
1912	De Quervain	Switzerland	70
1912	Rasmussen (land)	Denmark	84
1912	Sedov	Russia	81

Year	Explorer	Nation	Goal Parallel 90
1912-14	Brussilof	Russia	82:55
1912	Schroeder-Stranz	Germany	80
1913	Koch	Denmark	75
1913-17	Steffanson-Anderson-Bartlett	Canada	76
1913-17	MacMillan	U. S. A	82:30
1914-15	Vilkitskii	Russia	79
1917	Rasmussen	Denmark	86
1918	Storkinson	Canada	74
1921-24	Rasmussen-Frenchen	Denmark	84
1924	G. Binney (seaplane)	England	79:42
1925	J. A. Worsely-Algarson	England	83
1925	Amundsen-Ellsworth	U. S. A.-Norway	87:43
1926	J. M. Wordie	England	75
1926-27	Sir Hubert Wilkins (airplane)	U. S. A.-England	81
1926	AMUNDSEN-ELLSWORTH-NOBILE	U. S A -Norway	90
1926	RICHARD E. BYRD-FLOYD BENNETT	U. S. A	90
1926	G. P. Putnam-Bartlett	U. S. A.	80
1926	Donald B. MacMillan	U. S. A.	84
1926	Captain and Mrs Frank Kleinschmidt	Germany	73
1928	Wilkins-Eielson	U. S. A -England	88
1928	NOBILE (airship)	Italy	90
1928	Amundsen rescue expedition lost in Arctic.		
1930	Eielson lost on airplane in Arctic.		

THE FIGHT FOR THE BOTTOM OF THE WORLD

1739	Pierre Bouvet	France	54:10
1768	James Cook	England	67:15
1771	Yves Joseph Kerguelen	France	50
1772	Lozier-Bouvet	France	54:26
1772	Marion-Dufresne	France	49
1772	James Cook	England	67:31
1774	James Cook	England	71:10
1819	American Sealing Vessels	U. S. A	66
1819	William Smith	England	62:40
1819	Fabian von Bellingshausen	Russia	69:52
1820-22	Pendleton-Palmer	U. S A	66
1821	George Powell	England	62
1823	James Weddell	England	74:15
1823	Benjamin Morrell	U. S. A.	70:14
1830	John Biscoe	England	69
1833	Kemp	England	66
1837	Jules Dumont d'Urville	France	63

Year	Explorer	Nation	Goal Parallel 90
1838-42	Lieut. Charles Wilkes	U. S. A.	66:45
1839	John Balleny	England	69
1840	Jules Dumont d'Urville	France	63
1839-43	James Clark Ross	England	78:10
1844	Lieut. T. E. L. Moore	England	67:50
1850	Tapsell	England	65
1863-74	Dallmann	Germany	65
1874	George Nares	England	66:40
1875	Eldred	England	70:31
1880	Lind	England	66
1892	Thomas Robertson	England	65
1892-93	Fairweather-Bruce	England	66:40
1892-94	Larsen	Germany	68:10
1893	Evenson	Germany	69:10
1894	Christensen-Bull	Norway	74
1897	Adrian de Gerlache	Belgium	71:30
1898	Krech	Germany	64:15
1898-1900	Borchgrevink	England	78:50
1901-04	R. F. Scott	England	82:17
1901-03	Otto Nordenskjold	Sweden	66
1902-04	Bruce-Robertson	Scotland	74:01
1902-04	Jean R. Charcot	France	66:15
1902	Erich von Drygalski	Germany	67
1908-10	Jean B. Charcot	France	74
1907-9	Sir Ernest Shackleton	England	88:23
1910-12	ROALD AMUNDSEN	Norway	90
1910-13	R. F. SCOTT	England	90
1910	Shirase	Japan	80:05
1911-14	Mawson-Davis	Australia	72:25
1912	Filchner	Germany	76
1914-16	Sir Ernest Shackleton	England	77:40
1921	Sir Ernest Shackleton	England	69:17
1928	Sir Hubert Wilkins	U. S. A.-England	80
1929	RICHARD E. BYRD	U. S. A.	90